City of Boulder

TMP 2003

Transportation Master Plan

Approved by City Council September 16, 2003

CITY OF BOULDER

LSA

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COLOR BOX LEGEND

Supplemental Information

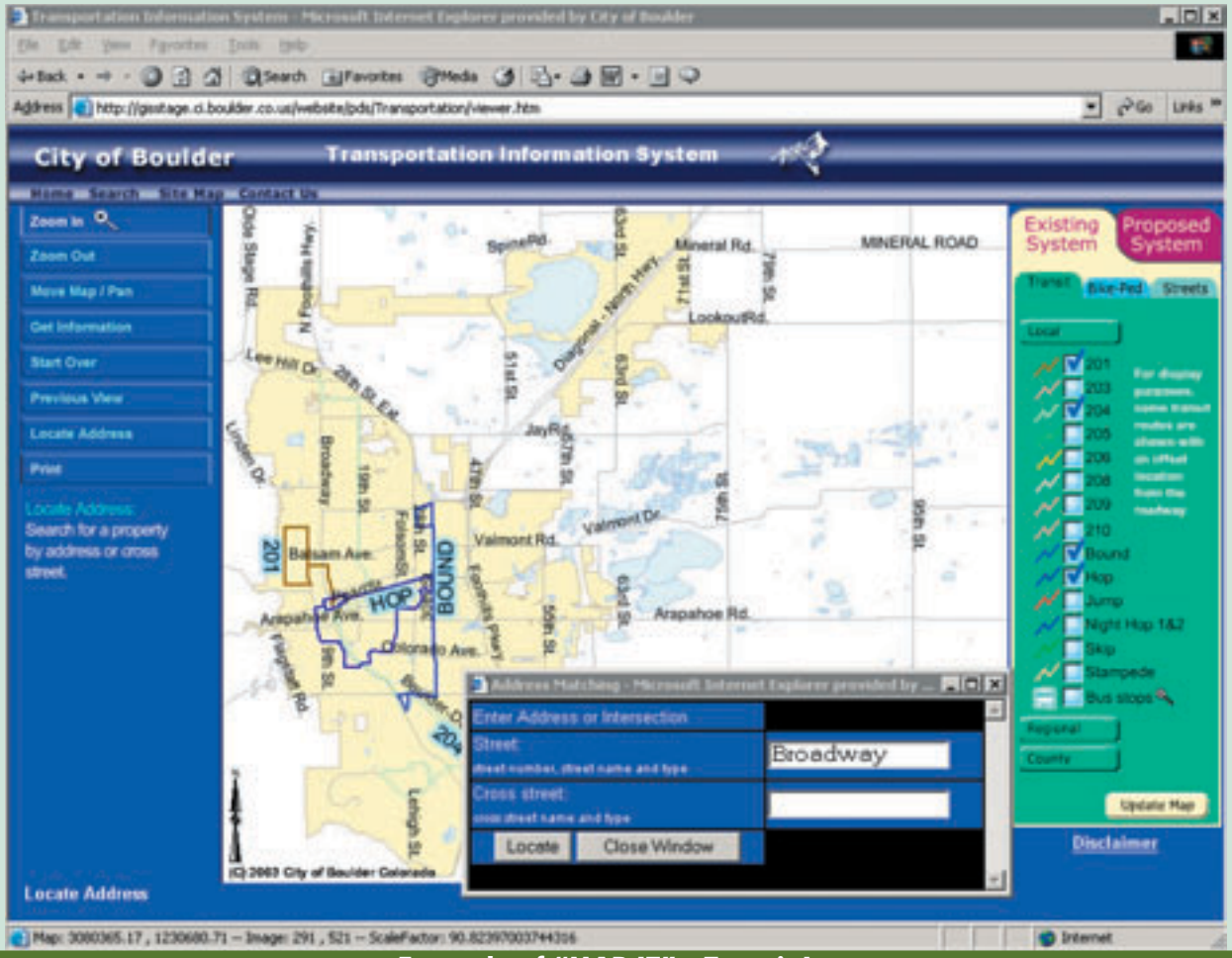
Often Asked Questions

Policies

The Transportation Master Plan (TMP) is on the Web!

With this update of the TMP, the city established the TMP Web site as a more accessible, user friendly, cost-effective and informative presentation of the community's transportation direction. This site contains all the material from this document both as Web pages and as a pdf file as well as extensive background material developed through the update process. As this is the city's first presentation of a Web-based master plan, the site is still in a development mode and will continue to be improved, based on user comments and suggestions. In addition, the site contains the interactive "Map It" application allowing anyone with a Web browser to explore the existing and planned transportation system.

TMP Web site Features



Example of "MAP IT" - Transit Locator

Included on the TMP Web site are:

- final products from each phase of the update process
- materials presented at the public forums
- selected Power Point presentations
- background research material on the policy focus areas
- "Map It" interactive mapping and project information display function
- links to related transportation activities and information
- opportunities to communicate with city staff

Introduction

The city of Boulder Transportation Master Plan (TMP) contains goals, objectives and policy guidance as well as an overview of the strategies and investment programs that the city and the community intend to accomplish by the year 2025. New to this plan is a fiscally constrained investment program of how to use the revenue the city expects to have from current funding sources and an Action Plan of how the city would invest in the next steps of developing a multimodal transportation system if additional revenue becomes available. The plan also continues to track the desired build out of the transportation system in the Vision program.

With the 2003 update of the Transportation Master Plan, the city is transitioning to a Web-based plan to make the plan more accessible and useful to Boulder citizens. This Web site's address is: **www.ci.boulder.co.us/publicworks/depts/transportation/masterplan** and contains a large amount of additional information supporting the policies and investment program presented here. Included on this site is an interactive mapping application that allows the user to display and get information on both existing transportation facilities and planning improvements.

What Does this Plan Contain?

- Policies related to transportation
- Modal plans: automobile, transit, bicycle, and pedestrian
- Background on travel behavior and expectations
- Strategic actions in the four Policy Focus Areas
- An investment program of proposed projects within our funding limitations
- An Action Plan as a framework for community action to fund additional transportation investment
- The Vision for our ultimate transportation system

TMP Goals and Objectives

Previous versions of the TMP contained goals, objectives and an extensive set of policy statements. For this plan, the goals are retained and the objectives are enhanced to better reflect the policy direction of the city.

2025 Goals

2025 Goals are to develop:

- An integrated, multimodal transportation system emphasizing the role of the pedestrian mode as the primary mode of travel;
- A transportation system supportive of community goals;
- Sufficient, timely and equitable financing mechanisms for transportation;
- Public participation and regional coordination in transportation planning; and
- A transportation system supportive of desired land use patterns and functional, attractive urban design.

Objectives are those measurable things that reflect our goals. These objectives are expanded to more fully reflect the desired transportation system.

2025 Objectives

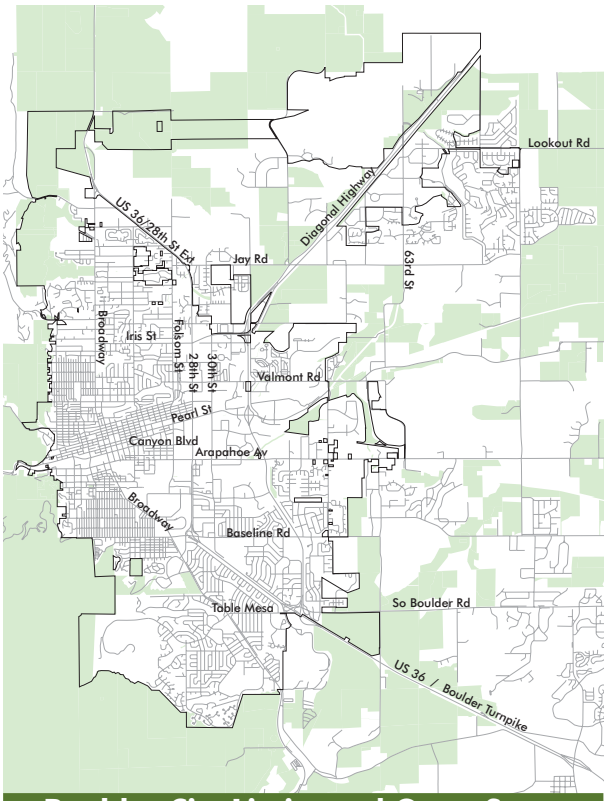
- Continued progress toward no growth in long-term vehicle traffic;
- Reduce single-occupant-vehicle travel to 25 percent of trips;
- Continued reduction in mobile source emissions of air pollutants;
- No more than 20 percent of roadways congested (at Level of Service [LOS] F);
- Expand fiscally viable transportation alternatives for all Boulder residents and employees, including the elderly and those with disabilities; and
- Increase transportation alternatives commensurate with the rate of employee growth.

As many of the policies from the previous plan have been incorporated in city design standards and standard practice, these policies continue as a given for the city. The smaller set of policies contained in this plan focuses on areas where continued progress is needed.

What is a Transportation Master Plan?

The Transportation Master Plan (TMP) is the city's long-range blueprint for travel and mobility. First adopted in 1989, the TMP recognized the need to reconcile two seemingly conflicting goals: first to provide mobility and access in the Boulder Valley in a way that is safe and convenient; and second, to preserve what makes Boulder a good place to live by minimizing auto congestion, air pollution, and noise.

The TMP fits under the policy umbrella of the Boulder Valley Comprehensive Plan (BVCP) and implements the broader community vision contained in the BVCP for the area of transportation. The TMP covers all forms of personal travel - walk, bike, bus and automobile.



Boulder City Limits and Open Space

Update Improvements to the 1996 TMP

This TMP builds on the policies and directions contained in the 1996 TMP. Key concepts used in the update are:

- The TMP update improvements will emphasize the four policy focus areas endorsed by the City Council: Multimodal Corridors, Regional Connections, Transportation Demand Management (TDM) and Funding.
- Major transportation funding improvements will be multimodal in character (including all modes - automobile, transit, pedestrian and bicycle) and implemented by prioritized multimodal corridor segment.
- The street network is the primary infrastructure for all methods of travel and a key public space uniting the fabric of the community. It will be well-maintained, improved to maximize the efficiency of the existing system and managed to accommodate all forms of travel.
- The city will maintain and support the current Community Transit Network (CTN) and incrementally expand the bus system as funding allows. The bus system will be supported by strategic investment in mobility options for older adults and those with disabilities, the targeted expansion of our pass programs, land use changes and pedestrian-oriented design, seamless connections to the other forms of travel, and high-quality transit stops and stations.
- The community is building toward a complete bicycle system intended to ensure a safe and continuous system of bicycle paths and lanes. This system will provide continuous connections within the corridors to provide access to destinations within the community and to connect to the regional system.
- The TDM program will build on the existing citywide efforts through programs developed for specific geographical areas by Transportation Management Organizations (TMOs). The level of expected TDM efforts will correspond to the level of expected development and redevelopment in the TMO area.
- Walking is the fundamental way to travel and normally connects travel by all other modes. The city will support pedestrian travel throughout the community and ensure adequate connections to public transit.

How Does the Plan Affect Daily Life in Boulder?

The TMP describes a vision for our transportation future, identifies policies to help achieve that vision and contains the transportation funding program for implementation. These policies affect what choices we have for travel by car, bus, bicycle and on foot. By identifying transportation priorities and the funding to support them, the Plan determines what projects are built and what programs are pursued.

Why Do This Update?

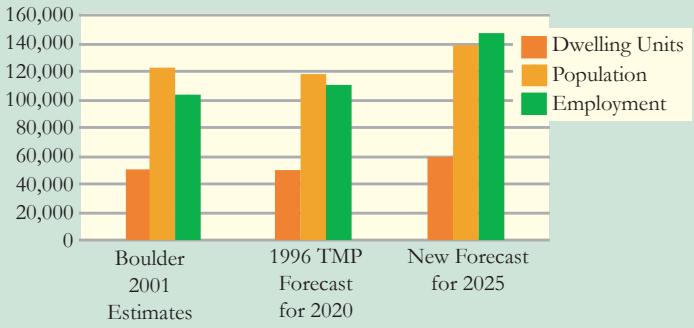
A lot has changed since the 1996 TMP. The following factors require a new update to meet the TMP goals:

- City funds are declining while additional funding is needed to implement the city's transportation programs and projects. (Sales taxes fund about 63 percent of city transportation funding).
- Growth has been much faster than anticipated in the 1996 Plan, with today's population and employment near the levels expected for 2020. Significant additional employment growth is also expected by 2025 with increased commuting into Boulder.
- RTD financial support for the Community Transit Network (CTN), which includes the HOP, SKIP, JUMP, BOUND, DASH, STAMPEDE and DART high-frequency bus services, has decreased, and we will be challenged to maintain the existing and planned bus service.
- The 1996 Plan was never fully funded, with expected revenues equaling about two-thirds of the plan's proposed funding needs.

Updating the TMP provides the opportunity to evaluate the results of our transportation policy since 1990, to identify areas that are not working or need improvement, and to refine the policy direction. This 2003 TMP is more realistic in relating levels of funding to transportation programs, such as improving intersections, building bike paths or providing buses on a frequent schedule.

Population and Employment Growth

Growth in population and employment has been much greater than that estimated in the 1996 Transportation Master Plan, which called for a 2020 population of about 118,000 for the Boulder Valley and an employment of 111,000. As the figure below shows, Boulder is near those levels today. Despite reaching the projected 2020 population and employment levels today without the transportation system planned for 2020, it is remarkable how well the transportation system continues to function. Based on current forecasts and current zoning, the city needs to accommodate a significantly larger population and employment base and the resulting demand for travel than was anticipated in 1996.



Land Use Forecasts

What were the Key Features of the 1996 TMP?

- Established transportation plans and programs within the context of the broader community goals to protect the natural environment while enhancing Boulder's quality of life and economic vitality;
- Recognized the reality that Boulder is a community surrounded by open space, largely developed in terms of physical extent and that Boulder values its historic and natural resources;
- Acknowledged that Boulder is unlikely to significantly expand road capacity and established the ground-breaking goal of shifting 19 percent of daily trips out of single persons driving a car to other forms of personal travel;
- Established the principle objectives of:
  - No long-term growth in vehicle traffic;
  - Reduction in travel by a Single Occupant Vehicle (SOV) to 25 percent of all trips;
  - Continuous reduction in automobile emissions of air pollutants;
  - No more than 20 percent of roadways congested (LOS F); and
- Added complete bicycle and bus system plans to the other modal plans.

What Is the Overall Approach for This Update?

The implementation of the 1989 and 1996 TMPs has been very successful. The city has made significant improvements in launching the high-frequency Community Transit Network (CTN), dramatically increasing transit ridership, improving traffic flow through a number of intersection and roadway improvements, implementing major pedestrian and bicycle improvements, and minimizing traffic impacts even while experiencing significant growth. As part of the initial plan assessment phase of the TMP update, the direction provided by City Council was to "Continue What We Are Doing Well and Stay the Course." Council directed that the city continue to implement the TMP's system improvements and the policies that evolved through the 1989 and 1996 TMPs.

The plan assessment at the start of this update process identified four focus areas to meet Boulder's transportation challenges: how the city can be smarter about where and what is invested in (multimodal corridors); the need to create effective regional partnerships to address regional travel (regional travel); engaging the business community in addressing transportation solutions (TDM); and the need to develop a realistic funding plan (funding). Summary objectives and conclusions in these four focus areas follow.

Be Smarter about Where and What the City Invests In

- Target transportation improvements on the city's multimodal transportation corridors.
- One size does not fit all - Investments need to be tailored to fit each corridor.
- Invest where needed - Transportation improvements will be prioritized for corridors that have or anticipate mixed-use development and significant growth.
- Plan for the future population - Includes increased investment in Special Transit to provide for the mobility needs for our growing aged population.
- Build upon what is working - A critical element in the multimodal system is the user-friendly, high-frequency transit network that Boulder and Boulder County have implemented. The network is working very well but can be further enhanced and expanded.
- Continue the service and the overall approach of the CTN, which has increased ridership significantly and is supported by the community.
- The Regional Transportation District (RTD) has reduced its commitment and funding levels for high-frequency services such as the HOP, JUMP and BOUND. Sustaining such high-frequency services will require Boulder, Boulder County, the University of Colorado and others to create a new model for providing transit, which will need to consider additional funding and potentially different operational and governmental approaches.

Create Effective Regional Partnerships that Produce Results

- Boulder is not in this alone. Regional partnerships with Boulder County, neighboring cities, RTD, and the Colorado Department of Transportation (CDOT) are the keys to providing solutions for regional travel into and out of Boulder.
- Form broad coalitions to support a package of improvements and the funding for improvements on the regional corridors.
- Develop regional consensus for multimodal improvements to regional corridors including, but not limited to, automobile, rail, bus, bicycle and pedestrian access.
- Improve regional transit connections through enhanced transit centers such as Boulder's Transit Village and Williams Village Transit Center.
- Support a Boulder County transit vision and regional corridor improvements through the Boulder County Consortium of Cities Regional Transit Committee.
- Provide regional bicycle connections to other communities.

Focus on Engaging the Business Community

- Boulder will remain an employment center and workers will constitute a growing percentage of total travel.
- Successful businesses are organized to attract and maintain customers and high-quality employees and depend on the transportation system to do this.
- Businesses are integral in developing TDM strategies.
- Business Oriented Investments – Through Transportation Management Organizations (TMOs) and Business Improvement Districts (BIDs), current and future businesses can provide meaningful input on transportation improvements in their area and on managing the transportation system.
- Build upon the Success of Eco Pass – Expand Eco Pass program into TMOs and multimodal corridors.

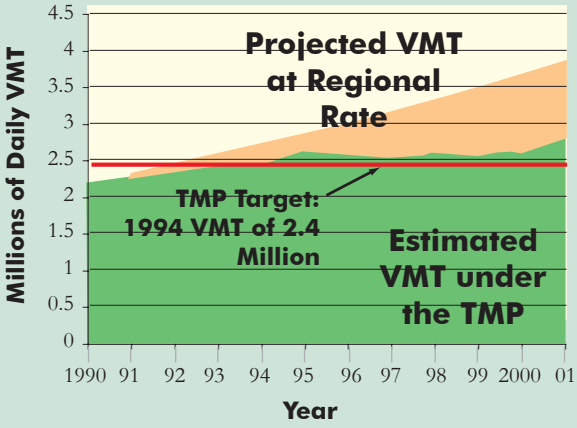
Develop a Realistic Funding Plan

- Prepare a fully funded plan which describes how we spend and what we get for it. The Current Funding Plan is based on current funding levels.
- Plan for a reasonable increase in funding within the context of a long-range plan. This Action Plan would require further "Action" on behalf of the city to identify the sources and potential for additional funds.
- Maintain a "Vision" program for Boulder which fully describes the long-term post-2025 transportation system and funding requirements to achieve that vision.
- Explore the concept of a mixed funding package to provide a more stable source of funding for transportation.

Staying the Course....Progress while Experiencing Significant Growth

As part of the initial plan assessment phase of the TMP update, an extensive inventory was done on what had been accomplished under the current policy direction since 1990. This inventory looked at the programs that have been established and facilities built under this policy direction. These include:

- Increased the roadway maintenance budget by $500,000 a year starting in 1997;
- Implemented a major signal system upgrade and improved signal system timing in all major corridors;
- Established the CTN with six (6) current services and an additional service starting in 2004;
- Established the GO Boulder program of education, marketing and pass programs such as the Eco Pass, with 60,000 Eco Passes in the community;
- Constructed 11 bicycle/pedestrian underpasses;
- Completed repairs and access ramps in seven (7) out of 29 Sidewalk Improvement areas and constructed more than 32 miles of new sidewalks; and
- Completed one-fifth of the projects in the Bicycle System Plan.



The results of these investments and other characteristics of the community produce travel behavior in Boulder that is quite different from travel behavior in the rest of the region. Boulder has a significantly higher use of the non Single Occupant Vehicle modes, resulting in a vehicle-miles-of-travel (VMT) increase that is about one-fifth that of the region. Since 1994, these differences have avoided about 1 million miles of daily vehicle travel in the Boulder Valley.

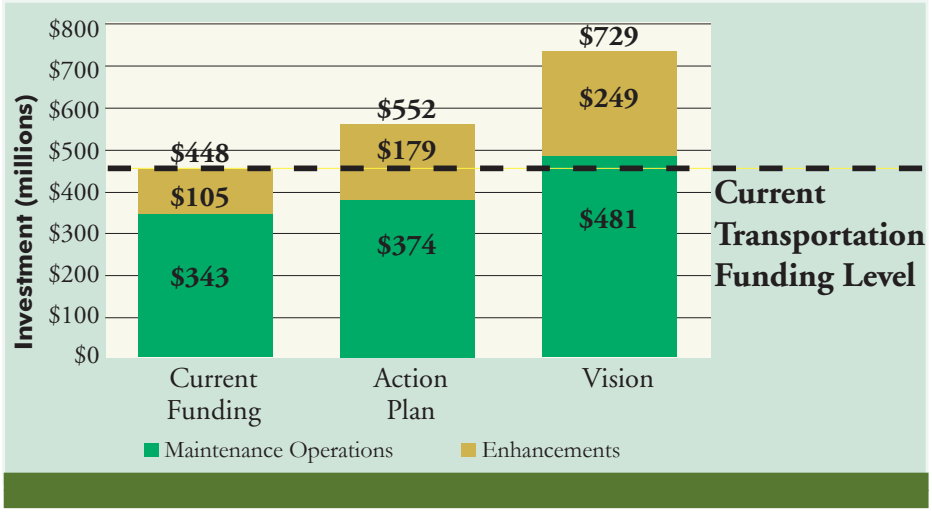
Investment Program

Investment Strategy

The city's investment strategy focuses on first maintaining and operating the existing transportation system and then using the remaining available funds for capital improvements and investments in the city's multimodal corridors. This strategy both protects the large public investment in the existing facilities and ensures that the system is operated in as safe a manner as possible. While the following sections discuss three levels of investment, in all cases the largest segment of the planned spending remains in the operations, maintenance and safety area.

Investment Packages

The TMP presents three transportation investment programs based on different levels of funding: Current Funding, the Action Plan and the Vision. In addition, a Reduction Strategy has been developed in the event that the current funding levels are not realized and future reductions are necessary. These programs implement the policy direction of the TMP at the different funding levels. While the 1996 TMP outlined the vision for Boulder, that plan was not based on available transportation funds and resulted in the need to prioritize transportation spending in 2000. In the 2003 plan, transportation investment is prioritized through the three investment programs. In each of these investment programs, funding of transportation operation/maintenance and safety is the highest priority. The Action Plan and Vision include an enhanced service standard for maintenance. The level of capital improvement investment is dependent on the funds remaining after these priorities are funded.



Investment Policies

The city shall generally give priority to transportation investments as follows*:

- Highest priority - system operations, maintenance and travel safety;
- Next priority – operational efficiency improvements and enhancement of the transit, pedestrian and bicycle system;
- Next lowest priority - quality of life, such as sound walls and traffic mitigation; and
- Lowest priority - auto capacity additions (new lanes and interchanges).

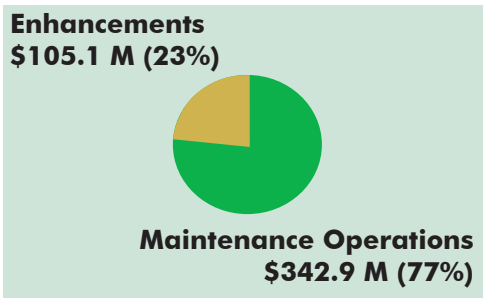
* *Note that within each priority level, all items are given equal weight.*

Investment in modal enhancements will be integrated between all modes, focused in the designated multimodal corridors and prioritized by the ranked multimodal corridor segments.

As the street network is the primary infrastructure for all modes, it will be managed and expanded to balance its use by all the modes. Roadway capacity will not be added at the expense of the non-auto modes.

The city's transportation system includes all the modes and the resources needed for the sustainable operation of the system. Any consideration of the share of system funding from future growth will be based on this system.

Current Funding



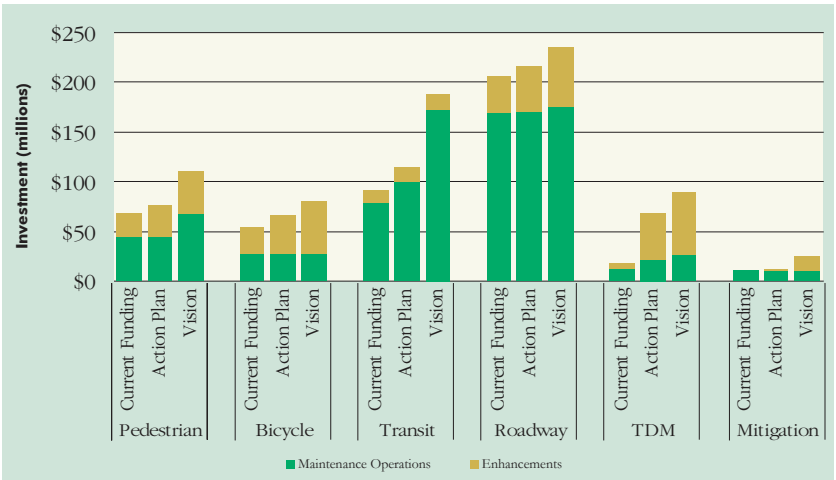
The Current Funding program reflects an investment strategy fixed at current funding levels, which is estimated at $448 million through 2025. Over 75 percent of these funds are for maintenance of the existing transportation system. The Current Funding:

- Maintains the safety and maintenance/operations priority for investment;
- Maintains programmatic enhancements for all modes;
- Prioritizes the limited capital improvement funds in high-demand city and regional travel corridors;
- Maintains the current, high-frequency CTN bus service (HOP, SKIP, JUMP, BOUND, DASH, DART, STAMPEDE);
- Preserves the existing Eco Pass program (RTD's bus pass program) and TDM efforts to promote and encourage alternatives to driving alone; and
- Increases regional emphasis by initiating actions to support a Boulder County transit vision and regional corridor improvements.

Potential Reduction Strategy

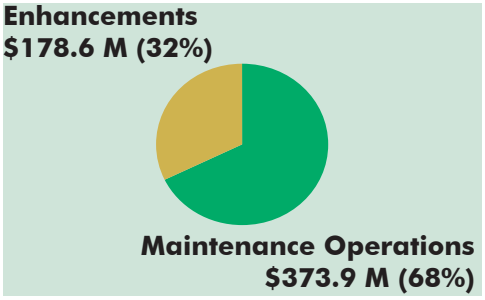
While it is likely that long-term revenues will meet the $448 million forecast, the recent reductions in sales tax revenue has resulted in the need to develop a reduction strategy for lower transportation spending while maintaining integrity with program objectives. The principles of this strategy have been applied to the 2003 and 2004 transportation budget and will be used in the event of further revenue reductions. These principles are:

- Maintain the integrity of the Transportation Prioritization approach previously developed by City Council in 2000 in priority order:
  1. Maintenance and Operations - limited/ strategic reductions
  2. Scale back expansion of the multimodal system - focus reductions on projects which increase maintenance responsibilities
  3. Neighborhood enhancements - defer additional capital investments;
- Achieve sustainable reductions over time, rather than one-time reductions;
- Continue efficiency improvements, such as reducing service in technical support categories where appropriate; and
- Maintain leveraged funded projects.



Investment by Category through 2025

Action Plan

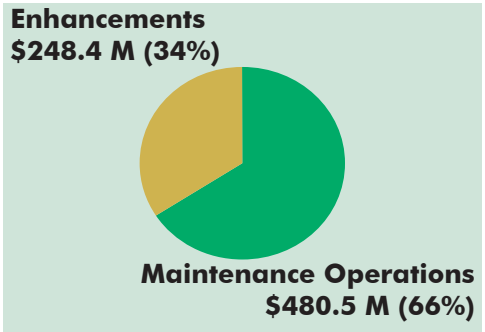


The Action Plan represents the next best steps toward reaching the community's transportation goals if additional funding becomes available. Pursuing and funding the Action Plan would approximately double the number of corridor segments that could be fully developed into multimodal environments. These improvements would significantly change the experience by users of all modes, with intersection improvements moving vehicles more quickly, pedestrians and bicyclists having access to completed facilities, and transit service expanded to those areas expected to see the majority of land use change and mixed use development. The combination of multimodal transportation investment and expected land use changes have the potential to create in other areas the kind of vibrant, interesting and pedestrian-friendly environment that characterizes the downtown. As reported in the Performance section, the strategic initiatives of the Action Plan are expected to move the community about halfway toward our transportation objectives for a third the cost of the Vision program.

The Action Plan assumes that an additional $111 million will become available through various funding sources. While increases are proposed for the expansion of the bus pass program and travel demand efforts, the majority of the additional funds are targeted toward the needed capital improvements along the city's multimodal transportation corridors. In addition to the Current Funding program, the Action Plan:

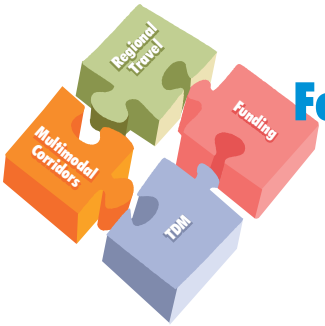
- Provides increases in safety/maintenance investments;
- Increases regional emphasis by expanding actions to support a Boulder County transit vision and regional corridor improvements for all modes, including staffing support for regional coalition building;
- Makes investments by priority corridor segment in additional corridors as compared to the Current Funding program;
- Targets additional corridor segments which have CTN service, higher density and redevelopment expectations;
- Establishes organizing structures for public/private partnerships such as Business Improvement Districts (BIDs) and Transportation Management Organizations (TMOs);
- Increases funding of Special Transit to provide needed transportation opportunities for the growing aged population;
- Maintains the current CTN network and provides two new services: the ORBIT and the LEAP;
- Focuses Eco Pass program increases along priority corridors through TMOs; and
- Provides real-time roadway system information, transit information and carpool matching services.

Vision



The Vision reflects the 1996 TMP in representing the completed multimodal system desired by the community. It is fiscally unconstrained and will take longer than 2025 to support financially as it has a total estimated cost of $729 million, more than $300 million over expected revenues by 2025. This program includes the strategic initiatives of the Action Plan and also would:

- Increase maintenance and operations funding to a life-cycle replacement level where we fully maintain our facilities;
- Complete the enhancement investments in all the multimodal corridors;
- Complete the CTN with 13 routes;
- Complete the bicycle and pedestrian systems;
- Significantly expand TDM efforts to include the Community Pass, providing Eco Passes for all residents and employees;
- Expand parking management to other areas of the community; and
- Complete all roadway improvements.



Four Focus Areas

The assessment of results from the policy direction since 1990 produced two primary findings. The first was to "Stay the Course" in terms of continuing to do what has worked well and been successful. Consequently, the city will continue to implement a balanced set of modal improvements for automobile, transit, bicycle and pedestrian travel. The second finding identified four focus areas where improvement and additional work was needed. These four policy focus areas have been emphasized throughout the TMP Update and organize the strategies reflected in the investment programs.

What Are the Four Focus Areas?

Multimodal Corridors

The multimodal corridors are the major transportation facilities providing for travel across town and connecting with the regional transportation system. The 1996 TMP identified these corridors and calls for improving all modes of travel along them. As these corridors carry a majority of the trips in the community and link important activity and commercial centers, maximizing their efficient trip-carrying ability requires improving the relationship between the multimodal transportation system, land use and design along these corridors.

Regional Travel

Significant growth in the number of employees working in Boulder but living elsewhere highlights the need for improved regional connections. Such improvements will only occur where corridor plans, funding, and collaboration with other communities and agencies are established.

Transportation Demand Management

When community or environmental impacts and costs limit expansion of the transportation system, improving the management and utilization of the existing system becomes a primary strategy. Boulder is largely developed and will not grow outward due to its open space, so managing the existing system will be an increasing contributor to meeting the city's transportation goals. Improved management is also the most cost-effective strategy to maintain the function of the transportation system.

Funding

Providing transportation facilities and programs requires public funding, yet the 1996 Transportation Master Plan was only about two-thirds funded. Job and population growth increases the demand for travel and will require additional investment to meet travel increases while maintaining the quality of life of the community.

Multimodal Corridors

The multimodal corridors are the major transportation facilities which accommodate auto, bus, bicycle and pedestrian travel. These corridors provide for travel across town and connect with the regional transportation system. We can increase travel efficiency in how we integrate future land uses along these multimodal transportation corridors. In the future, these corridors will facilitate linking different modes together (i.e., bikes on buses or being able to park once and walk to multiple destinations), giving people workable choices of travel. Information systems can also greatly improve how we travel in the future. Using technology to provide up-to-the-minute information on bus arrival times, carpool availability and road conditions will make transportation choices more convenient. "Smart" transportation can also help us provide workable transportation options for our aging population.

Broadway: A Multimodal Corridor

The 1996 TMP identified 10 multimodal corridors, but did not provide a lot of detail on how to develop a true multimodal corridor. Since that time, the city has studied the existing corridors with Broadway being the best example of a complete multimodal corridor in many sections. The multimodal characteristics of Broadway include:

- is one of the primary north-south corridors in the community and connects to the regional transportation system;
- has high-frequency CTN transit service for its length in the SKIP and several regional transit services;
- has high-quality pedestrian and bicycle facilities for most of the corridor allowing for safe and convenient travel along the corridor;
- has numerous safe and convenient crossing opportunities of the corridor, including underpasses and signalized intersections;
- provides good pedestrian and bicycle access to the corridor allowing easy access to transit and facilities on the corridor;
- contains a mix of uses with a high concentration of users in the activity centers of the downtown and the University of Colorado (CU);
- has high-quality, pedestrian-friendly design in the downtown area and older segments; and
- has two major activity centers, the downtown and CU, which manage and price their parking supply.

The result of these characteristics produces a transit mode share of 19 percent for travel along the corridor when measured at Regent Drive in the p.m. peak period. A significant number of bike trips also travel along the corridor. If these transit trips were taken in automobiles, the Level of Service (LOS) at this intersection would drop from a D to a very poor F condition and travel along the corridor would be more difficult.

What Are the Multimodal Corridors and What Improvements Are Proposed?

The 1996 TMP identified 10 multimodal corridors and called for improving all modes of travel along them. As these corridors carry a majority of the trips in the community and link important activity and commercial centers, maximizing their efficient trip-carrying ability requires improving the relationship between the multimodal transportation system, land use and design along these corridors. The 10 corridors' improvements include:

Roadway

- Roadway reconstruction to reduce long-term maintenance liabilities;
- Improved operational and traffic flow through intersection enhancements focusing on system "bottlenecks";
- Roadway improvements which support multi-occupant vehicle use;
- Roadway-related (functional efficiency/safety) improvements in priority corridors; and
- Signal coordination optimization based on current traffic flow patterns.

Pedestrian

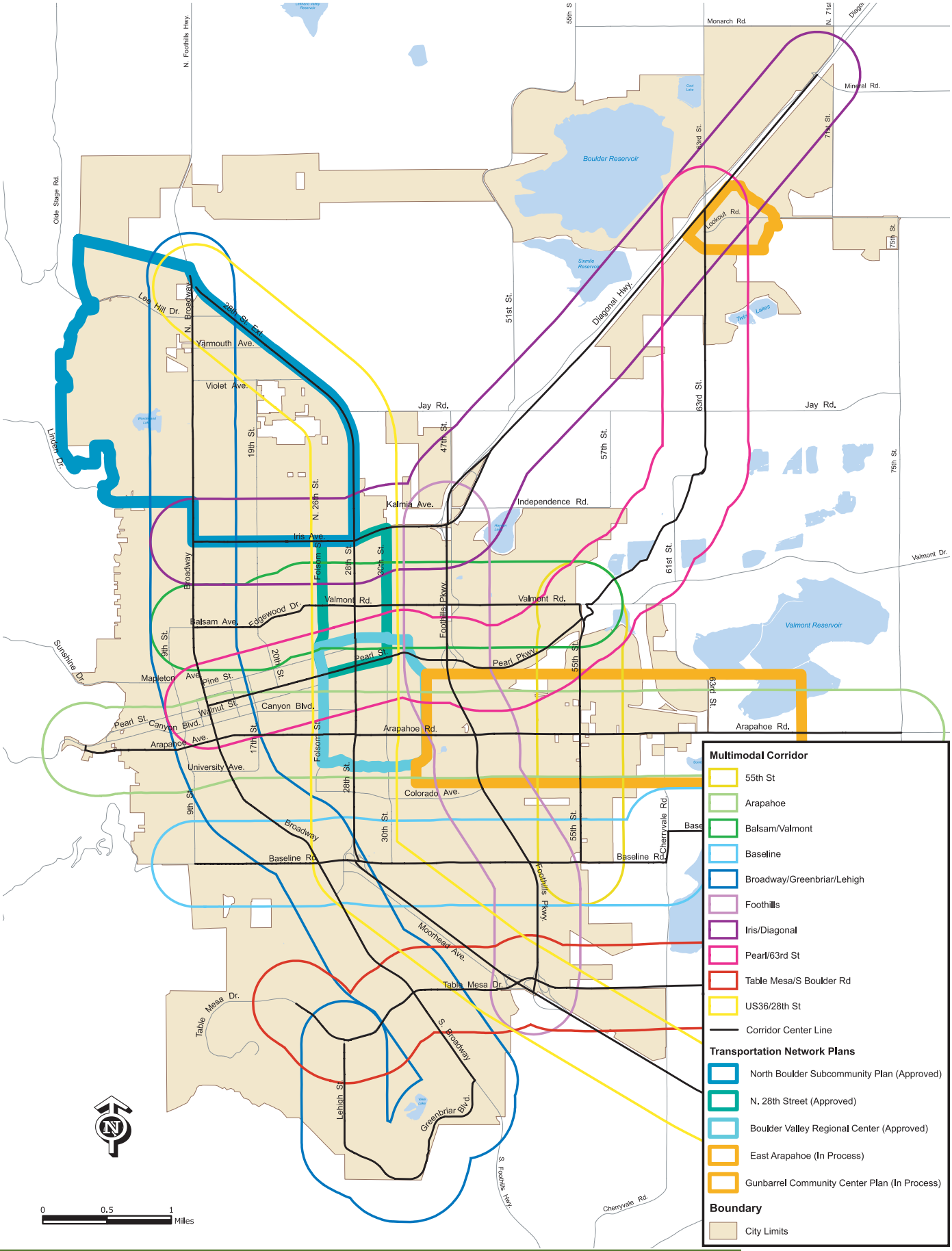
- Complete segments of missing sidewalks to provide direct and continuous connections between destinations and to transit;
- Continue adding enhanced pedestrian crossings at strategic locations; and
- Continue installation of pedestrian signals and crossing count-down heads.

Bicycle

- Complete missing bicycle trails and bicycle lanes to provide direct and continuous connections;
- Construct needed underpasses at high volume locations to provide safe connections; and
- Provide bicycle route signage.

Transit

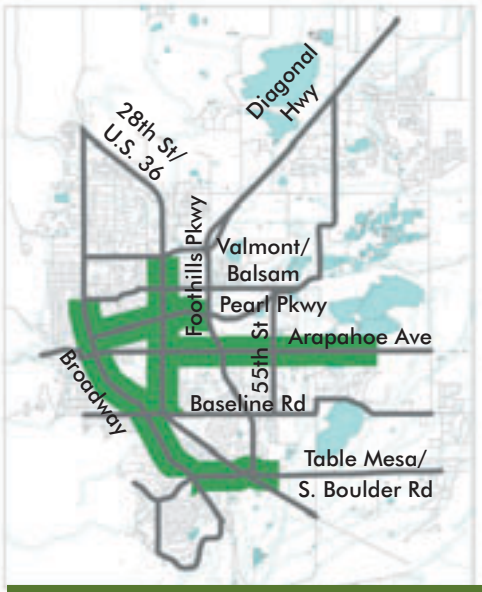
- Deploy the high-frequency CTN;
- Construct enhancements at key high-frequency transit stops to include, at a minimum, transit signs and pavement platforms. At higher demand transit stops, shelters, benches and trash receptacles will be provided; and
- Operational system efficiency improvements, such as bus bypass lanes, bus signal prioritization and other improvements to increase the efficiency of the CTN.



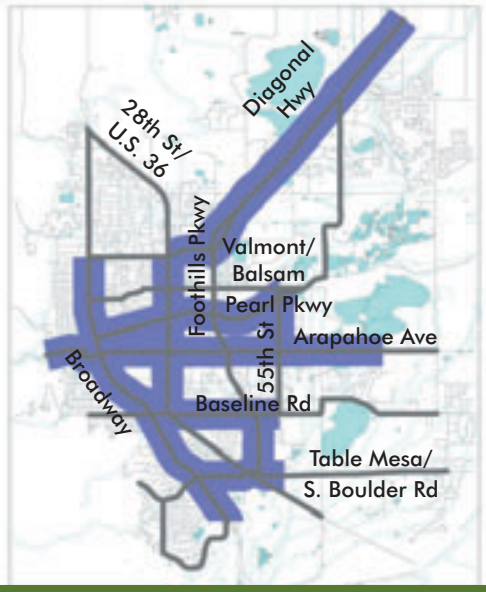
Multimodal Corridors - City of Boulder

Corridor Prioritization

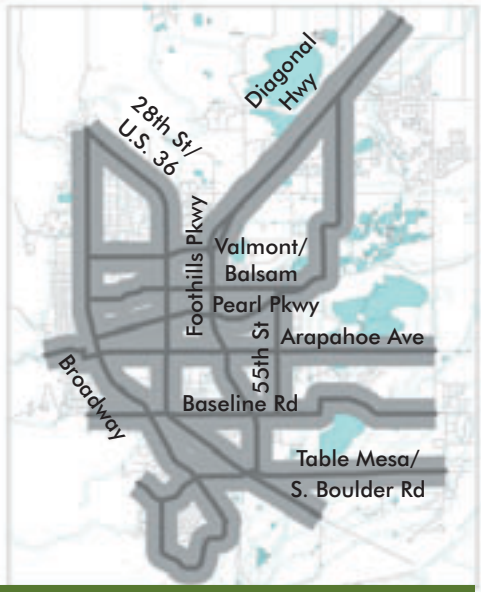
Because available transportation funds are insufficient to fully fund all the corridors, improvements to the corridors need to be phased. The 10 multimodal corridors were divided and prioritized into 42 segments segments based on a number of transportation and land use characteristics. Improvements to these corridor segments are dependent upon the available funds. Eleven (11) of the 42 corridor segments can be constructed under the Current Funding program, the additional funds identified in the Action Plan would allow 21 of the corridor segments to be implemented, while the Vision program builds out all 42 segments.



Current Funding
11 of 42 Corridor Segments



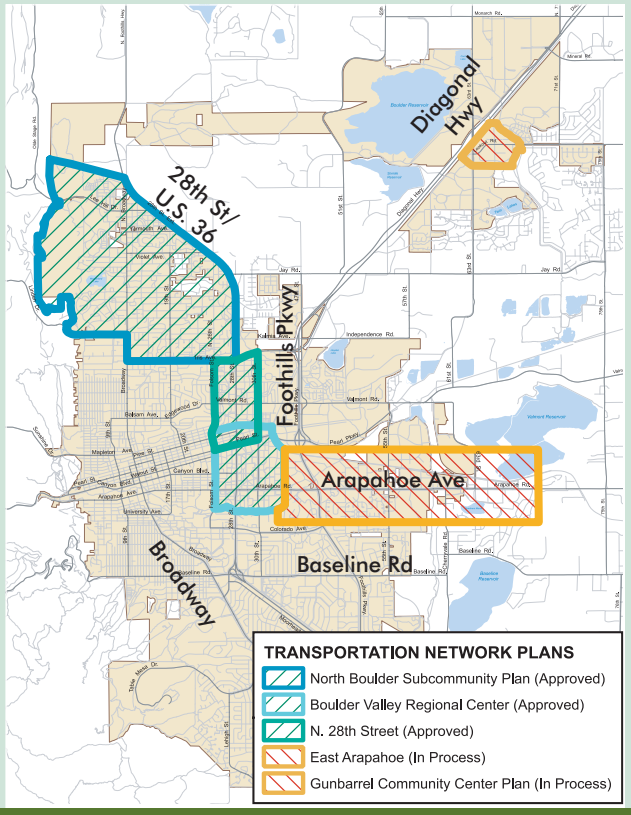
Action Plan
21 of 42 Corridor Segments



Vision Plan
42 of 42 Corridor Segments

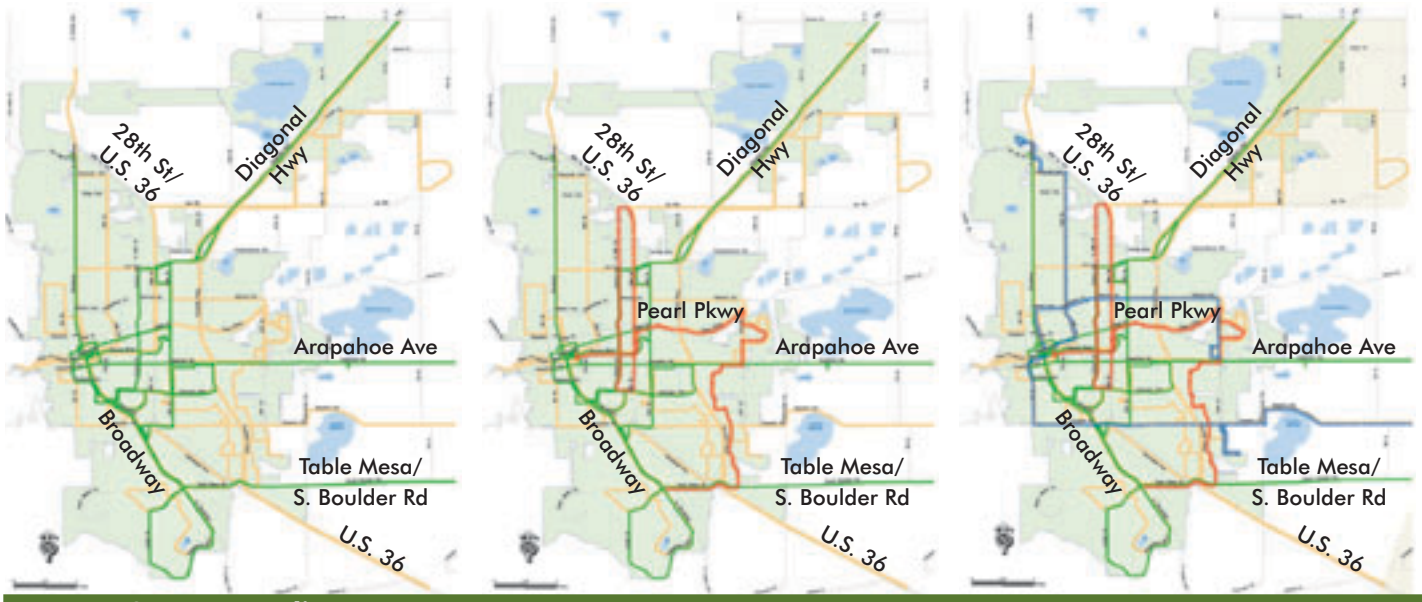
Transportation Network Plans (TNPs)

As in previous master plans, the 2003 TMP contains individual modal system plans that detail how each mode will contribute to the mix of transportation options available to the community. The concept of multimodal corridors is that all modes are integrated and coordinated. A new planning approach has been developed in the last several years that has advanced this "multimodal" integration at a finer grain: Transportation Network Plans (TNPs). TNPs define goals and facilities for all varieties of transportation in a specific area. This definition is intended to be flexible while helping land owners, developers and the city develop the infrastructure to improve safety and mobility for people using a variety of travel options in that area. The first TNP was generated through the North Boulder Subcommunity Plan in the early 1990's. More recently the City Council has adopted the North 28th Street TNP and the Boulder Valley Regional Center (BVRC) Connections Plan. Other TNP processes currently underway are for the Gunbarrel Community Center Plan and East Arapahoe. TNPs are developed with their own independent review and approval processes with ultimate adoption by the City Council. As TNPs are adopted by the City Council, they become a part of the Transportation Master Plan's long-term, multimodal system plan.



Community Transit Network

The implementation of the city's Community Transit Network (CTN) originated with the HOP and SKIP services and was fully planned in the 1996 TMP. This transit service has been highly successful at minimizing congestion impacts in corridors such as Broadway and has increased transit ridership more than 400 percent since 1990. The CTN has been supported by the public for both continuation and expansion as funds are available. Currently there are six (6) CTN services: HOP, SKIP, JUMP, BOUND, STAMPEDE and DASH; and the DART service to Longmont will start in 2004. The Current Funding program proposes continuation of these services for the life of the Plan through local funding to support service above the RTD base service level. The Action Plan builds on the CTN success and adds two important services, the LEAP (east Boulder) and the ORBIT (28th and Folsom loop), to serve the areas where the majority of development and redevelopment is expected to occur. The long-term vision for Boulder is to provide a network of 13 CTN services integrated with the RTD services as well as to enhance transit with real-time information and supplement Gunbarrel fixed route service with Call-n-Ride services.



Current Funding (Existing Service) | **Action Plan** | **Vision Plan**

LEGEND

- RTD: Standard Service
- CTN: High-frequency Service
- Action Plan: 2 Additional CTN Routes
- Vision: Full Implementation
- City Limits
- Call-n-Ride Service Area

Intelligent Transportation Systems

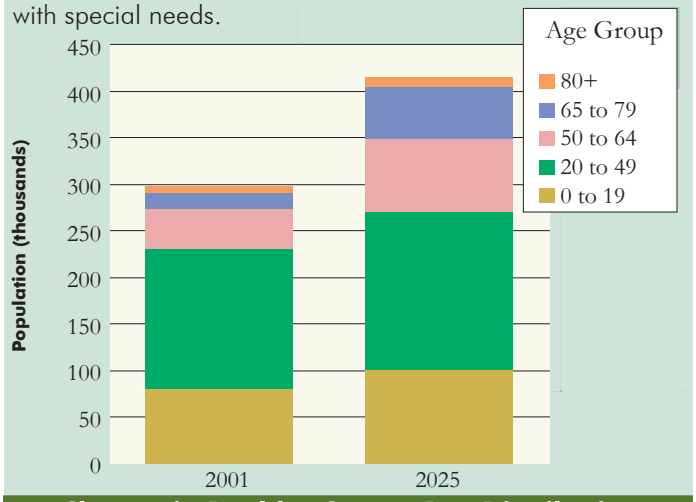
Intelligent Transportation Systems (ITS) is the collective term for a variety of advanced technologies intended to aid travel, enhance the capacity and efficiency of the highway system, improve safety, and assist in the active management of facilities and traffic. ITS can provide real-time traffic information to motorists and emergency services, informing motorists about the best route to travel, and allowing emergency services to remove roadway incidents quickly. These systems are under development throughout the United States and will have long-term benefit within the city of Boulder.

Given the limited ability to add more roads in the city, ITS helps maximize the use of our existing road system and control congestion. The integrated elements of ITS include:

- Fiber-optic cables to communicate information;
- Sensors to provide information on average traffic speed and volume;
- Closed-circuit cameras at major intersections to provide live video information on traffic flow;
- Variable message signs to inform motorists of incidents ahead and supply alternate route options;
- Synchronization of traffic signals;
- Direct emergency services tie-in for immediate response to incidents;
- Information sharing with transit centers about traffic flow; and
- Information on parking availability and location.

Special Transit

Special Transit provides a unique and important service to the city of Boulder, serving the elderly and disadvantaged with door-to-door demand responsive service. Under the Action Plan, annual funding for Special Transit would approximately double to serve the increasing aged population and those with special needs.



Change in Boulder County Age Distribution

Why Not Build Interchanges on Foothills Parkway to Relieve Congestion?

An often asked question is, "With existing and forecast congestion on Foothills Parkway, why not build more grade-separated interchanges?" While interchanges would reduce congestion along parts of Foothills Parkway itself, there are many reasons why these interchanges would not provide the expected traffic relief and would result in major impacts. These reasons and impacts are summarized as follows:

- A significant increase in traffic volumes would occur on the east-west roadways feeding the parkway, increasing traffic congestion, noise impacts and air quality impacts on these connecting roadways.
- The Foothill Corridor improvements would result in increased congestion at the end points at U.S. 36 and the Diagonal Highway, offsetting any significant travel time savings from the interchanges.
- Residential areas in proximity to the parkway are already impacted by noise. The noise would be exacerbated by increased volumes, increased speeds and higher elevations associated with several new grade-separated intersections.
- The grade-separated interchanges would result in aesthetic impacts and would impact the view of properties east of the parkway.
- Increased traffic along Foothills Parkway would increase air quality impacts.
- The construction of these four grade-separated intersections would cost approximately $40 million. If the city tried to pay for this itself, this would equate to 10 to 15 years worth of the city's discretionary CIP funding. It is likely that these interchanges could only be afforded as part of a set of regional corridor improvements.
- A more cost-effective and efficient approach is to improve intersection design, turning capabilities, signal phasing and other high-yield/low-cost improvements. These types of improvements are funded for the Arapahoe/Foothills intersection.

Transit Information in Real-Time

Key to the success of the CTN is the fact that with high-frequency service, the user does not need a schedule and can rely on a bus coming every 10 minutes. Since high-frequency service for all the transit routes in Boulder is unaffordable, an innovative and promising solution for bus service with frequency of 20 minutes or longer is to provide the user with real bus arrival times through the internet, cell phones and Personal Digital Assistants (PDAs). This system is based on Global Positioning System (GPS) technology and removes the uncertainty and wasted time of waiting for a bus. In the Action Plan and Vision, all buses in Boulder will be equipped with real-time capabilities.

Regional Travel

The greatest increase in projected travel over the next 25 years for the city of Boulder is in the area of regional travel. New employment and shopping opportunities will increase the need for travelers to be able to get to, into and through Boulder to reach their destinations. If our businesses are to be successful and thrive, we must provide a broad range of multimodal improvements to address congestion and mobility needs.

Recent transportation modeling shows that the greatest increase in future congestion will occur on the limited number of regional facilities connecting Boulder with neighboring communities. While the city has an investment program to fund facilities and programs within the city, there is very little additional investment currently funded for the regional facilities. Without some change, a significant increase in regional travel will occur on facilities that look much like they are today. The city of Boulder can play an important role in facilitating regional action to provide and fund convenient travel choices. While travel by Boulder residents within the city is generally on track with the TMP objectives, regional travel is still highly dependent on Single Occupant Vehicles. Due to the distances of regional trips, future travel will need to be balanced between automobiles, transit and strategies such as carpooling and vanpools. As with the U.S. 36 corridor, regional corridors will require long-term solutions that include and integrate multiple travel options.

What are We Currently Doing to Improve Regional Travel?

The city of Boulder has planned improvements that begin to address regional travel.

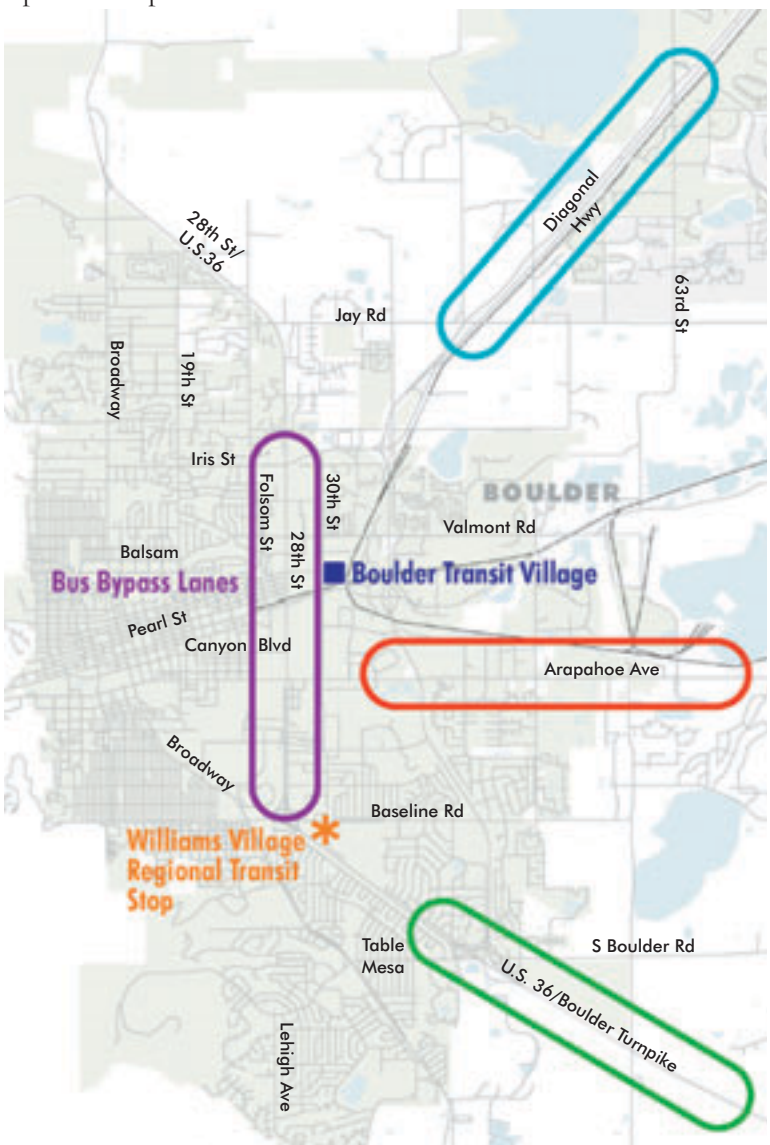
- **Arapahoe Intersection Improvements from Foothills to 75th:** In coordination with CDOT, numerous intersection improvements are planned including turn lanes, transit bypass lanes, sidewalks and bike lanes.

- **28th and Colorado:** Recently completed improvements at this intersection include the addition of double left-turn lanes for both north and southbound movements on 28th Street, the replacement of the traffic signal at Colorado and 28th, and bicycle and pedestrian improvements.

- **Bus Bypass Lanes along 28th Street Improvements:** As part of the 28th Street Study, there are a number of approved improvements that will benefit both local and regional transit. Key to this plan is the construction of bus bypass lanes on the frontage road along the south section of 28th Street. These bus bypass lanes are intended to enhance both local and regional transit travel times, making transit more competitive with the automobile as a viable transportation option. The 28th Street project also includes improved transit stops and pedestrian connections to local destinations.

- **Williams Village Transit Center:** The proposed Williams Village Transit Center will provide a strategic transfer area where regional patrons can walk to or from the local stop area as well as transfer from existing and proposed transit service.

- **Boulder Transit Village:** The Boulder Transit Village is intended to become a major connection between local bus service, bicycling and walking, and regional bus and rail service.



Regional Corridor Partnerships

Key Partnership Strategy Areas Being Pursued

Many Boulder residents and employees travel daily through Boulder County and adjacent cities to reach their destinations, while nearly half of the city's workforce must use the regional facilities to reach their jobs in Boulder. Given these relationships, it is evident that Boulder is not in this alone and must work with neighboring communities to develop regional partnerships addressing regional travel.

- **U.S. 36 Mayors and Commissioners Coalition (MCC)** – Since 1998, the city has worked with the Boulder County Commissioners and U.S. 36 corridor mayors on developing a mutually agreed upon multimodal package of improvements for the corridor. The city will continue partnerships to support the Locally Preferred Alternative (LPA) set of improvements for the corridor. The city will proactively work with these partners and RTD, CDOT, Denver Regional Council of Governments (DRCOG), the federal government and the business community to complete the Environmental Impact Study (EIS), and to fund and build these improvements. Ideas and objectives for the U.S. 36 Corridor include:
  - Support the LPA package of improvements including additional travel lanes, HOV (High Occupancy Vehicle) and bus rapid transit, commuter rail, and a corridor bikeway;
  - Leverage local investments for state and federal funds;
  - Develop Intelligent Transportation Systems (ITS);
  - Implement smart bus technologies with real-time transit travel times; and
  - Support real-time carpool/vanpool technologies.

- **Boulder County Regional Transit Committee** – A key strategy of this plan is the proactive participation of the city in the Boulder County Regional Transit Committee sponsored by the Consortium of Cities to plan and finance the transit future together. Ideas and objectives include:
  - Develop an understanding of and methods for transit financing;
  - Develop organizing structures to implement new financing and to determine operational approaches;
  - Construct bus lanes or bus bypass lanes to reduce travel times;
  - Develop Intelligent Transportation Systems (ITS);
  - Implement smart bus technologies with real-time transit arrival information;
  - Support real-time carpool/vanpool technologies; and
  - Reduce transit/carpool travel times through additional travel lanes.

- **S.H. 119/Diagonal Consensus** – Through partnerships between Boulder County, CDOT, RTD, city of Longmont and city of Boulder, a collective set of near-term and mid-term regional solutions have been developed for this corridor. The city will continue partnerships to support the consensus set of improvements, including the pursuit of extending passenger rail up the S.H. 119 corridor; funding; and construction. Ideas and objectives for the S.H. 119 corridor include:
  - Construct bus lanes or bus bypass lanes to reduce transit and/or HOV travel times;
  - Develop corridor-based funding strategies;
  - Implement roadway and intersection capacity improvements, including a multimodal interchange at S.H. 52 consistent with the corridor consensus;
  - Develop Intelligent Transportation Systems (ITS);
  - Implement smart bus technologies with real-time transit travel times;
  - Support real-time carpool/vanpool technologies; and
  - Submit joint requests for federal funding of improvements.

Transportation Demand Management (TDM)

With limited resources to build new capacity and continued employment growth, Transportation Demand Management (TDM) strategies are cost-effective, complementary, and efficient alternatives to additional investment in transportation facilities. Consequently, TDM will become a bigger part of the effort to achieve Boulder's transportation objectives. Over the past few years, the business community has become more proactive in providing travel choices for their employees through support of programs like the Eco Pass. The community must build on its partnerships with business to both achieve the transportation objectives and to continue as an attractive and vital employment and commercial center.

TDM Policies

- The community's TDM efforts will be focused on reducing congestion and on limiting the increase in vehicle miles of travel.
- TDM initiatives will be undertaken in partnership with the business community and will focus on providing a wide range of incentives valuable to business in exchange for increasing commitments and performance in supplying employee travel choices through area-based organizations such as Business Improvement Districts (BIDs) and Transportation Management Organizations (TMOs).
- TDM efforts will be focused to maximize the benefits of existing and planned transportation investment in the multimodal corridors and in the areas of development and redevelopment where they can support the land use character desired by the community.
- Higher levels of development and redevelopment will be supported provided that this development occurs in conjunction with higher levels of TDM to mitigate the congestion effects of this growth.

What is Transportation Demand Management (TDM)?

TDM promotes more efficient use of the existing transportation systems by influencing the time, route or mode selected for a given trip. TDM strategies increase travel choices, offering the opportunity to choose how, when and, if travel will be by car or in some other way, with the aim of balancing demand with the transportation system. Options include:

- Modal strategies such as vanpools and teleworking;
- Incentives such as Eco Passes and Commuter Clubs;
- Specialized services such as shuttles; and
- Design improvements such as bike lockers and preferential parking for ridesharing.

Besides city-wide and employer programs, localized Business Improvement Districts (BIDs) and Transportation Management Organizations (TMOs) are potential organizing structures for providing area-wide improvements and parking management programs.

Boulder's application of TDM continues to evolve, responding to the community's experience, the changing nature of transportation challenges and individual travel preferences. With a historic emphasis on mode shift, many of Boulder's current TDM efforts focus on modal choice. This requires first providing the options, such as starting high-frequency transit or building a bike facility and then supporting them through education, incentives, and marketing efforts. However, other aspects of TDM focus more on congestion by efficiently using the full capacity of the existing transportation system. TDM is a much more cost-effective strategy than trying to build a system to meet peak demand, and offers significantly fewer community and environmental impacts.

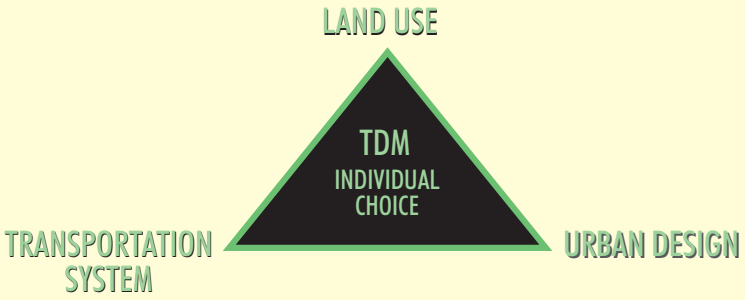
Today, with the expected increase in employee travel, TDM emerges as a critical component for maximizing the city's multimodal infrastructure investments. TDM, pursued in partnership between the public and private sectors, includes the following benefits:

- Improved access;
- Improved mobility;
- Enhanced access to employees;
- Improved employee retention;
- Increased customer parking availability at peak times;
- Tax benefits;
- Cost savings to employers; and
- Decreased congestion and air pollution.

A promising TDM strategy supports the formation of organizing structures such as Business Improvement Districts (BIDs) and Transportation Management Organizations (TMOs). These organizations allow local business and residents to partner with the city to provide better access in a given area, such as occurs in the downtown area. A **Transportation Options Toolkit** has been developed to help businesses make economical choices for customers' and employees' access and to retain valuable employees. A BID has a broad charge and can be formed to undertake a wide variety of activities, such as enhancing the amenities of an area to attract and maintain customers or marketing the area, with travel management being only a small part of its activities.

Where Does TDM Work Best?

Three ingredients work together to provide the fertile ground necessary for a Transportation Demand Management plan to be effective in providing individuals with transportation choices. These ingredients include land use with a sufficient mix and density of land uses, urban design which integrates with our transportation system, and a comprehensive transportation system that provides multiple choices and is seamless between modes of travel.



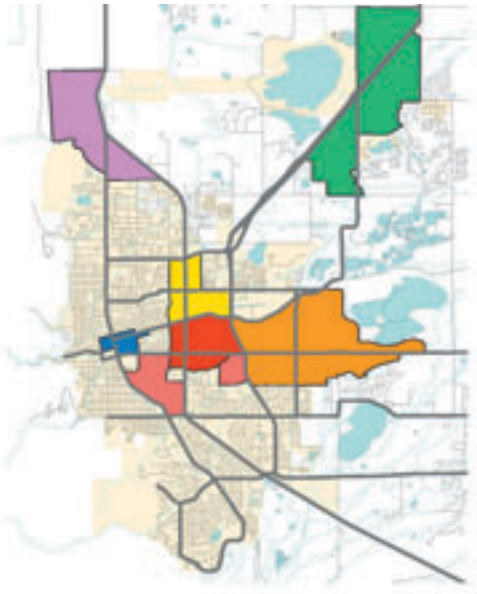
TDM and the Boulder Business Community

Representatives from Boulder businesses and community organizations participated in building a business-friendly TDM program. This group established these guiding principles for the city in pursuing TDM:

- **Provide Tools and Resources for Employers and Property Owners to Implement TDM.**
  The **Transportation Options Toolkit** guides employers and developers in designing a site-based TDM program tailored to help them make economical and effective choices for customers' and employees' access and mobility.

- **Emphasize Incentives.**
  For employers and developers, incentives involve receiving a return for conducting TDM, such as preferential treatment in the development review process or bonuses in the development process. Travelers and commuters, on the other hand, identify incentives as reasons to utilize modal alternatives to driving alone that do not penalize those who continue to drive alone. These incentives can include subsidies, transit passes, and financial incentives.

- **Encourage the Development of Organizations that Coordinate Transportation Needs Through Public-Private Partnerships.**
  A key TDM strategy supports the formation of organizing structures such as General/Business Improvement Districts (G/BIDs) and Transportation Management Organizations (TMOs). These organizations allow local business, property owners, and residents to partner with the city to coordinate and implement comprehensive transportation services and infrastructure within a localized area.



Potential Management Areas

TDM Implementation

The city will continue Boulder's existing TDM programs, which includes a proactive distribution of Eco Passes (transit), alternative mode marketing and outreach, and an extensive Employee Transportation Coordinator (ETC) network. Additional TDM strategies will be implemented following the principles of the business TDM committee. These will be location specific and will include travel options and/or implementation steps chosen for a customized program advancing our transportation objectives and fitting the specific needs of that area. A comprehensive list of potential TDM strategies for implementation is available on the TMP Web site.

Action Plan

Strategies recommended in the Action Plan for the city include:

- Implement the **Transportation Options Toolkit** for developers and employers;
- Eco Pass subsidies for 100,000 passes targeted to multimodal corridors;
- Vanpool subsidies and startup assistance, creating five (5) to 10 new vanpools per year. The goal is to establish 116 total vans by 2025, with the city paying for one-third of the cost of the van (the remainder is paid by user fees);
- Up to six (6) Business Improvement Districts (BIDs) or Transportation Management Organizations (TMOs):
  1. Crossroads
  2. 28th
  3. Arapahoe Ave./55th
  4. Gunbarrel
  5. Central Area General Improvement District (CAGID) Areas (existing)
  6. University of Colorado (CU) (existing);
- Market-based TDM strategies; and
- Real-time ridesharing.

Vision

Additional strategies recommended for the Vision include:

- Community Pass Program;
- 7th TDM Area - North Broadway; and
- Expanded Parking Management.

TDM Strategies

The fertile ground necessary for a TDM plan to be effective in providing individuals with transportation choices requires land use with a sufficient mix and density of land uses, urban design which integrates with our transportation system, and a comprehensive transportation system that provides multiple choices and is seamless between modes of travel. To be most effective, TDM strategies combine three elements:

• Services

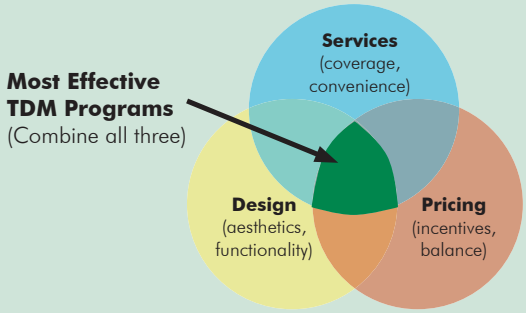
Services provide and enhance the convenience of alternative modes (such as streamlining the process for forming a vanpool) and the coverage of those modes (such as providing better access to transit facilities). Services may include the provision of rideshare matching; vanpool formation; employee shuttles; employee transportation coordinators; marketing and information; and assistance in developing flexible working policies.

• Design

Design provides the high-quality pedestrian environment conducive to using alternatives and affects the general aesthetics of the built environment. TDM-friendly site design includes an aesthetically pleasing environment for pedestrians; adequate and convenient bicycle facilities; protected pedestrian corridors through parking facilities; preferential parking for carpools and vanpools; passenger drop-off locations near building entrances; and buildings sited to the street.

• Pricing

Pricing strategies provide incentives for using options to driving alone and manage the existing cost structure between modes. These strategies may include subsidized vanpools; Eco Passes; separating parking from office leases; transportation allowances; parking cash-out; parking management; and financial incentives (such as Commuter Clubs, mode use assistance, etc.).



The Fertile Ground for TDM

Funding

Develop a Realistic Funding Plan

The budget is the means by which the city manages its assets and implements its policies. The transportation budget is formulated within the policy context of the Transportation Master Plan (TMP). The TMP is based on implementing a balanced multimodal-based transportation system. The TMP advocates that the city:

- Adequately preserve the existing infrastructure;
- Strive to increase safety;
- Maximize the efficiency of our existing system (roadway, transit, bicycle and pedestrian); and
- Enhance mobility through investments in the completion of the multimodal system (transit, bicycle and pedestrian).

The TMP advocates that this multimodal-based investment strategy be focused in the system of ten corridors that constitute the designated multimodal corridor grid. TMP priorities form the base for funding allocation. Investment on enhancements to the modal systems is focused in multimodal corridors. With limited resources, investments are focused on maintaining the existing infrastructure. Remaining resources are focused on enhancements to the highest priority corridors.

The 1996 TMP prioritizes funding for maintenance, operation and safety as the top priority and advocates that the city move toward a preferred maintenance practice of life cycle replacement. The 2003 TMP Update is consistent with these funding priorities. Under all 2003 TMP investment programs (Current Funding, Action Plan and Vision Plan) maintenance, operations, and safety programs receive the majority of transportation funds, ranging from 77 percent in the Current Funding program to 64 percent in the Vision program. As the roadway system is the largest and most complete of the modal systems, it requires the majority of maintenance and operation funds in each investment program. The Action Plan supplements the level of maintenance but does not reach the level of preferred practice.

The next funding priority after maintenance and operation is improving mobility through multimodal system enhancements and efficiency improvements, including roadway, transit, bicycle and pedestrian investments. The 1996 TMP developed system plans and identified the projects needed to complete each system. While the street system largely exists today, other systems such as transit and bicycle are only partially developed and consequently require greater investment to reach completion. The 1996 TMP vision includes a grid-based high-frequency transit system and a grid-based bicycle system of primary and secondary corridors intended to accommodate all levels of users.

The 2003 TMP Update process has refreshed the vision for each mode, identifying completed projects, and adding and removing proposed projects (see Modes and Plans for more detail). The number of proposed high-frequency transit routes has been reduced from 18 to 13; the need for improved regional connections is highlighted; additional efficiency projects are identified for the road system; and a major network planning effort has been completed to identify bicycle/pedestrian and road connections needed throughout the community similar to the adopted Transportation Network Plans. Project costs were reviewed and documented.

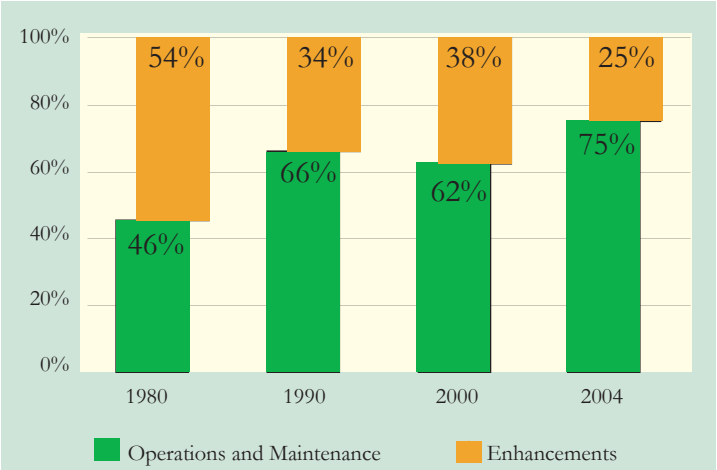
A significant refinement in the investment programs is to prioritize projects by multimodal corridor segment. City Council's direction in the 1999 Prioritization Process emphasized multimodal transportation investments by prioritized corridor. The new process incorporated an improved understanding of the elements and integration needed to produce a transportation system that works well for all modes. Projects have been classified by multimodal corridor segments, and these segments prioritized by a matrix of criteria that include the level of transit service, regional connections, existing and needed facilities, and existing and future land use.

Funding for the Action Plan

To accomplish the $111 million additional investments outlined in the Action Plan, additional funding will be required. This amount equals approximately $5 million of additional funding annually. One source of funds that staff will continue to pursue is federal and state grants. Historically the city has been able to receive about $2 million per year in these grants. Even if the city were only able to secure half the historical grants, these federal and state funds would provide a positive step toward the proposed Action Plan. However, a significant source of new revenue will be needed to fund the Action Plan. Examples of funding sources that might be considered that would each approximately produce the required funds include:

- An increase in sales tax of 0.25 percent, **or**
- A head tax of about $2 per employee per month, **or**
- An increase in the Transportation Excise Tax for new development, **or**
- Some combination of these or other sources.

The declining ability of the city to fund enhancements in the system is demonstrated by the adjacent graph.
From 1980 to the proposed 2004 budget, the portion of funding available for enhancements has decreased from being more than half of the transportation budget to 25 percent. Some of this change is due to the increased maintenance needed on a larger system and to recent reductions in enhancements consistent with our priority to maintain the system, with roadway maintenance being the largest expense. Even with these adjustments, capital investment in the transportation system has clearly fallen short of recent growth and the amount needed to achieve our transportation goals and objectives.



Changes in Transportation Spending

Transportation Revenues

Revenues to support the transportation programs and investments of the city come from a variety of sources, but by far the largest share comes from sales tax revenue. The dedicated transportation sales tax is six-tenths of a cent on a dollar of spending and was approved by the voters in 1967. In recent years, the dedicated transportation sales tax has provided approximately 63 percent of total funding for transportation. The funds expected to be available for transportation through 2025 reflect the city's revenue forecasts and current funding sources, resulting in $448 million in 2003 dollars.

City Revenue Forecast to 2025
(all in 2003 dollars, in thousands)

	Average Annual	Total to 2025
Sales Tax	$12,174	$280,000
Excise Tax	$1,000	$23,000
Intergovernmental Revenues (includes grants)	$6,304	$145,000
Total	**$19,478**	**$448,000**

Transportation Plan Modal Elements

The 1996 Transportation Master Plan identified a vision for the buildout of Boulder's transportation system. This vision addressed all modes of transportation including automobile, transit, bicycle and pedestrian. As part of the direction to stay the course, this update process refined the list of improvements by mode reflecting improvements completed to date and public input through the course of this update process.

This TMP also benefits from the capabilities of Geographic Information Systems (GIS) spatial analysis and mapping. Through review of the improvements completed since 1996 and analysis of the modal improvement plans, the TMP modal elements have been refined and each project's description and costs updated. All proposed projects are part of a geographic database available through the Plan's Web site, where users can ask "what if" type mapping questions and queries. The TMP modal elements include automobile, transit, bicycle and pedestrian. Overview maps of these elements are provided here, while detailed maps are available through the TMP Web site.

Automobile

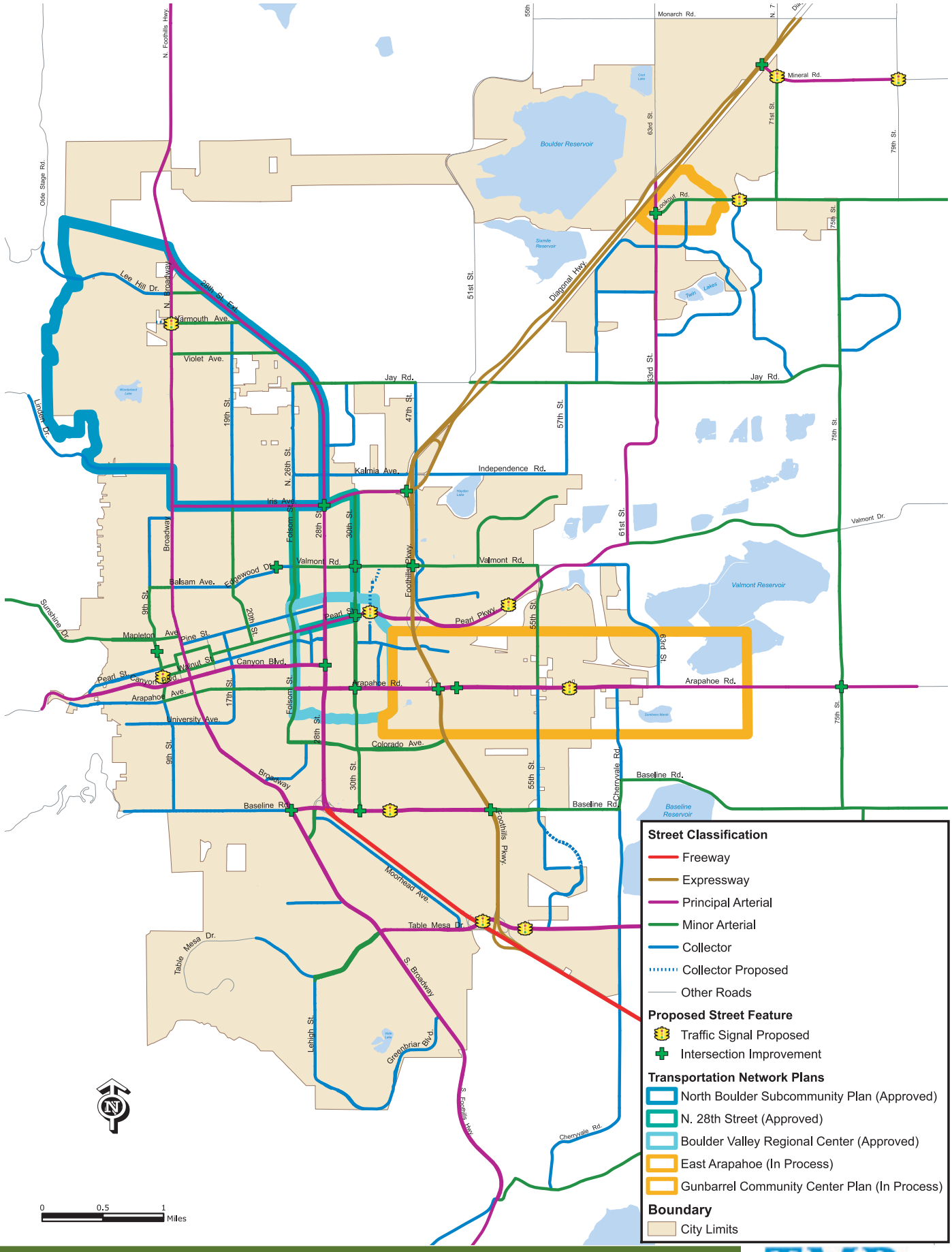
The street network is the primary transportation system and serves a variety of modes and vehicular types, including automobile, truck, transit, bicycles and pedestrians. Boulder's street system is largely built out and constrained by Boulder being a mature community, so the emphasis in the automobile modal element is to operate the system as safely and efficiently as possible. A significant number of intersection improvements are planned to increase efficiency, remove bottlenecks and reduce congestion. The intersection operational improvements are designed to increase traffic flow and include additional through, left- or right-turn lanes. Traffic flow improvements also consist of both the installation of new signals, and improved signal timing and progression of existing signals. These improvements and anticipated additional traffic signals are shown on the facing map.

As the street system is aging, additional emphasis is needed on repair and replacement of street sections that have reached the end of their expected life. Boulder is committed to replacing high-volume streets and intersections in concrete, which provides a smoother travel surface, greatly extends their expected life and significantly reduces long-term maintenance costs. The recent street reconstruction projects on Table Mesa and Broadway are examples of this emphasis.

The street system is defined by a Street Functional Classification, consisting of a hierarchy of streets from the local streets to collector streets to freeways. These functional classes establish a common understanding of the use of the street and its character, regulate access from adjacent properties and determine how the costs of new street construction are shared between the city and surrounding properties.

Roadway Policies

- The city will develop and manage its street network in a manner that places reliance on improving the efficiency of the existing system before expanding that system.
- The city will pursue development of a highly connected and continuous road system, based on a grid pattern allowing for convenient and efficient travel by all modes.



Street Function Class and Proposed Street Facilities - City of Boulder

Transit

A major element of the city's Transportation Plan is the high-frequency Community Transit Network (CTN). This system had been developed to address the most common barriers to transit use, such as infrequent service and indirect routes. The transit service is strongly supported by marketing and education and transit pass programs such as the Eco Pass that make the service easy to use.

The key components of the CTN system are:

- Direct service from point A to point B;
- Schedule free service at 10 minutes or less from 7 a.m. to 7 p.m.;
- Community-based design for a unique and inviting identity;
- Appropriately sized buses that are warm, friendly and family-oriented with large doors and windows;
- Bus drivers as community ambassadors;
- Supported by pass programs that eliminate the need for exact change and speed boarding;
- Strong continuous transit marketing and education program;
- Seamless interface between bus, bike and pedestrian facilities;
- Effective transit connections between regional and local systems;
- System based on strong partnerships between the city, county, CU and other local governments; and
- Transit supported by adjacent land use and high-quality urban design.

Successful Transit

Making transit a viable and used mode of transportation requires five key ingredients:

- Route structure: Does the service take you from where you begin your trip to your destination?
- Hours of service: Is the service available when you want to take your trip?
- Frequency: Is the service convenient so you do not have a long wait for the bus?
- Vehicles: Are the vehicles inviting and user friendly? and;
- Pass programs: Does the fare system encourage the efficient use of transit while generating sufficient revenue?

The success of the CTN service demonstrates that all five ingredients are provided.

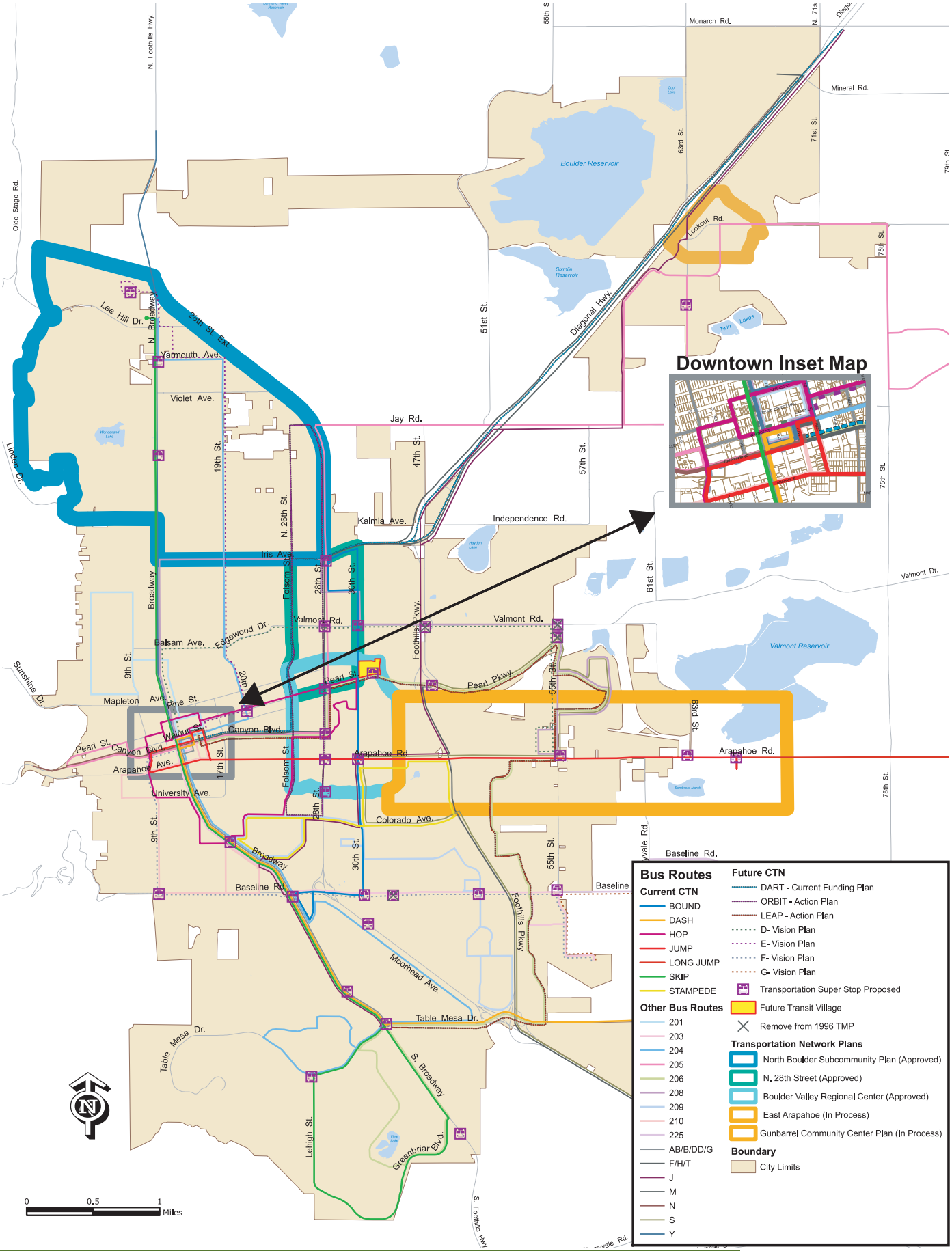
The long-range vision for the transit system includes 13 high-frequency routes with linkages and connections at transit super stops throughout the community, and major transit centers providing regional connections in the downtown, CU, and at the Boulder Transit Village.

Transit Policies

- The city will work to incrementally improve and expand the high-frequency transit service provided by the CTN throughout Boulder County, including introducing timed transfers and implementing an expanded transit information system including real-time transit information.
- The city will improve transit access through a variety of capital improvements including the Boulder Transit Village, transit super stops, transit priority lanes, improved bike parking and continuous pedestrian connections.
- The city will support improved regional service between Boulder and its sister cities in Boulder County and in the U.S. 36 corridor between Boulder and Denver.
- The city will continue to expand the existing pass programs (Eco Pass, CU Pass, BVSD Pass) and develop new applications of the group pass concept to improve transit accessibility and to increase transit demand.

What is a Super Stop?

Transit "Super Stops" are locations where multiple transit services meet that provide for a pleasant and convenient transfer between transit services and that connect passengers with community activity centers. These key locations will often require greater amenities than bus stops, but do not require the level of investment of stations. Super stops could include amenities for transferring transit customers (such as shelter, seating, schedule information, fare payment systems, supporting retail, etc.) and quality connections to important community destinations (such as improved roadway crossings, multi-paths, pedestrian connections, signage and wayfinding systems).



Existing and Proposed Transit Service - City of Boulder

Bicycle

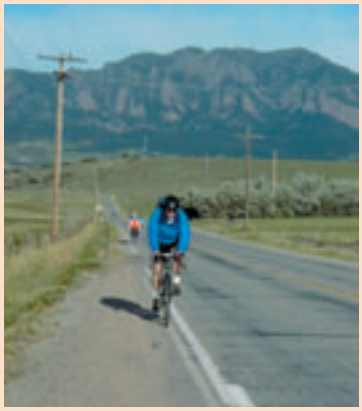
Bicycling is often portrayed as a symbol of the healthy and active community and lifestyle found in Boulder. Boulder already has high bicycle use compared to most U.S. communities, but with growing public health concerns about obesity and air quality, increased bicycling remains one of the most effective ways to travel while achieving personal health and air quality benefits. With an average trip length of about four miles, many of the trips made by Boulder residents could be accomplished by bike.

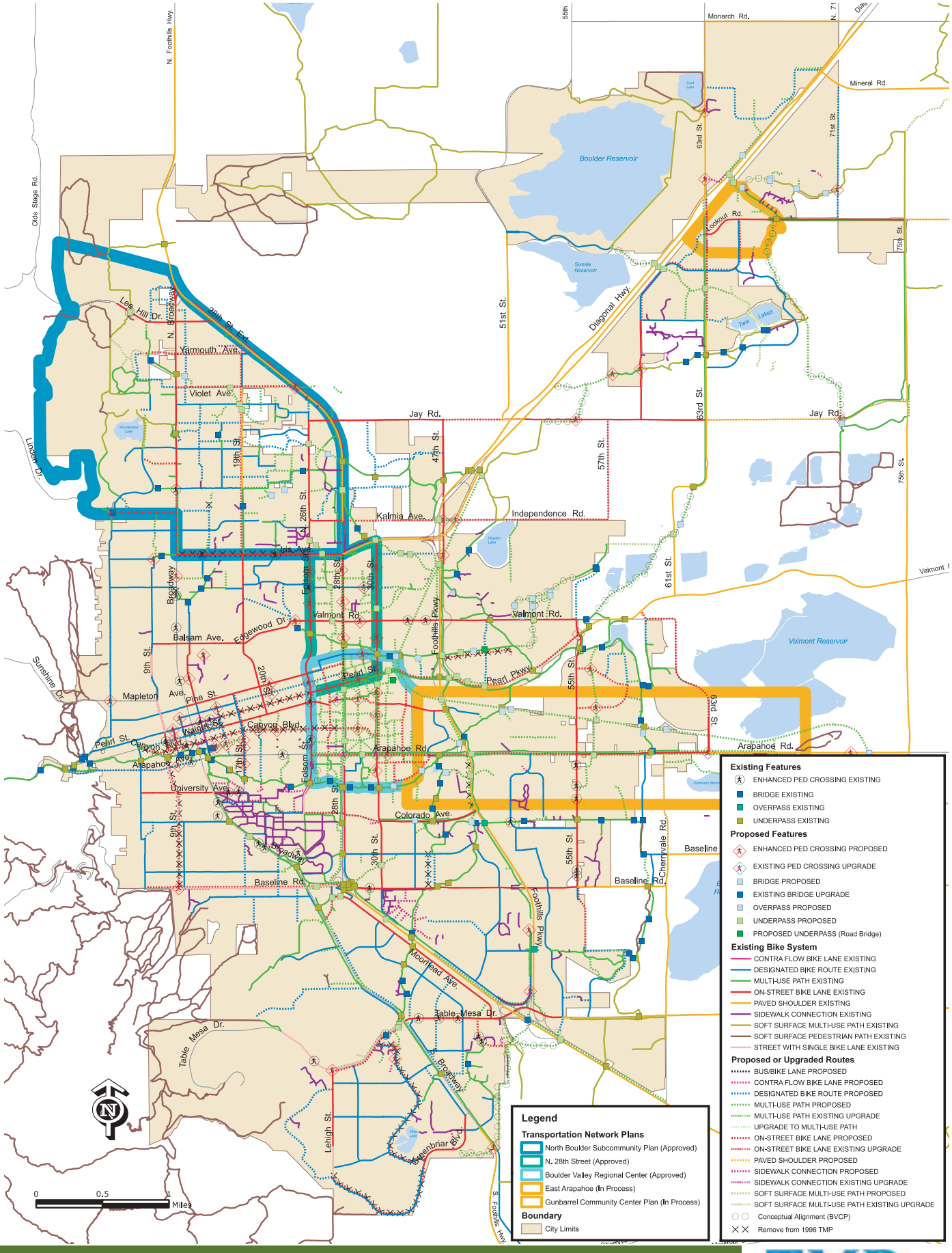
The bicycle element is based on developing a continuous bicycle network of cross-town corridors allowing for safe and convenient bicycle travel throughout the community. While these corridors may be composed of a variety of facility types, continuous corridors avoid the missing links that disrupt bicycle travel and put bicyclists in unexpected, difficult, and potentially dangerous situations. The bicycle element also recognizes that bicycle users range from the experienced commuter who is comfortable in traffic to children who cannot safely use a busy street. Consequently, a system of off-street multi-use paths is included as an option to the street system.

The long-range bicycle network for the city of Boulder is comprehensive and will provide both on- and off-street connections throughout the city. With the completion of the bicycle element, an additional 92 miles of bicycle lanes, routes, and shoulders will be added. In addition, enhanced crossings, overpasses and underpasses will be added to the bicycle network. These facilities will provide safe connections and the opportunity for bike travel throughout the city for all levels of riders.

Bicycle Policies

- The city will complete a grid-based system of primary and secondary bicycle corridors to provide bicycle access to all major destinations and all parts of the community.
- The city will coordinate with Boulder County, CU, the Boulder Urban Renewal Authority (BURA), neighborhood plans, the City Parks and Recreation Department, the Open Space and Mountain Parks Department, and other government entities and plans to ensure that all city and county projects connect with and/or help to complete the corridor network.
- The city will work with property owners, developers, the BURA, the Boulder Valley School District (BVSD), the City Parks and Recreation Department and CU to ensure that commercial, public, and mixed-use and multi-unit residential sites provide direct, safe and convenient internal bicycle circulation oriented along the line of sight from external connections to areas near building entrances and other on-site destinations.
- The city will combine education and enforcement efforts to help instill safe and courteous use of the shared public roadway, with a focus on better educating students on how to properly share the road with bicyclists, pedestrians and users of transit.





Existing and Proposed Bicycle Facilities - City of Boulder

Pedestrian

Pedestrian travel is the real measure of the accessibility of the transportation system. Walking is the original mode of travel and is essential to all other modes. Whether one is walking from a parked car to the front door of a business or from a transit stop to home, the pedestrian portion of every trip helps determine the enjoyment, safety and convenience of that trip. The pedestrian system provides the connections between the different modes and is a critical element in supporting the transit system. The lack of a pedestrian system is also now identified as a major obstacle to "active living," with the resulting increase in obesity and related health issues nationwide.

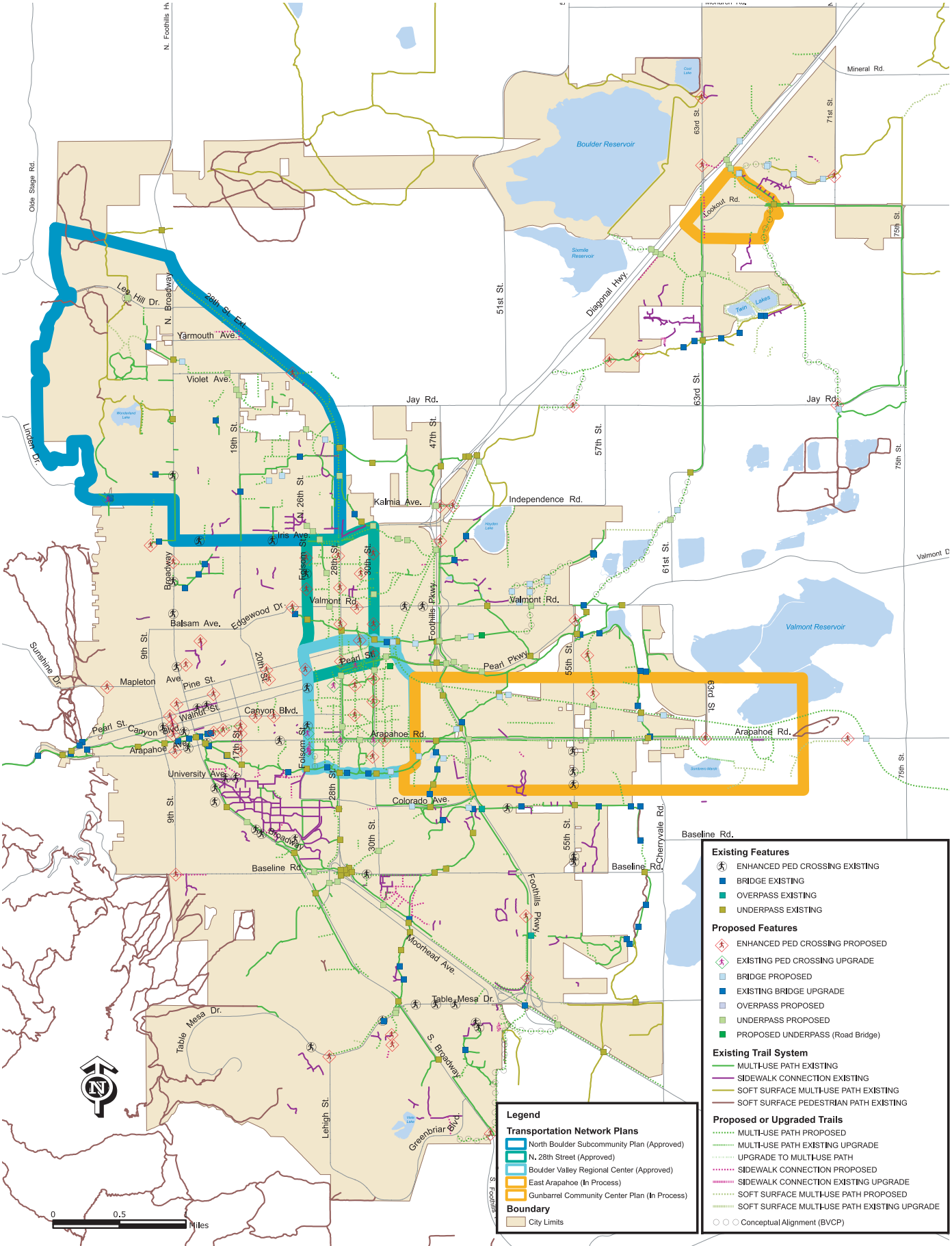
To encourage more walking, the pedestrian element supports:

- Providing a continuous network so that pedestrians are not stranded short of their destination or forced into difficult or potentially dangerous situations;
- Ensuring a safe walking environment through adequate maintenance, snow removal, vegetation trimming and lighting;
- Creating a pedestrian-oriented environment through high-quality urban design and pedestrian amenities; and,
- Providing routine education and enforcement on the rights and responsibilities of pedestrians, bicyclists and vehicle drivers.

The TMP pedestrian element address key improvements needed to complete the missing links connecting popular destinations and providing linkages between home, shopping, work and transit. In many areas, these pedestrian connections will provide a pedestrian environment similar to the downtown. In other areas, the pedestrian connections are strategic, providing pedestrian linkages between activity areas and transit. With the proposed pedestrian improvements, 55 new underpasses, 60 enhanced pedestrian crossings and an additional nine (9) miles of new pedestrian facilities will be ultimately added to complete the pedestrian element under the Vision program. This last figure does not include multi-use paths, which have been included in the bicycle facilities.

Pedestrian Policies

- Pedestrian travel is involved in every trip and is the basis for all other modes of travel. A high-quality pedestrian environment will be developed as the foundation for the desired multimodal transportation system.
- The city's standard for pedestrian mobility and accessibility is the ability of a wheelchair user to move safely and conveniently through the transportation system.
- A high-quality pedestrian environment includes the ability to travel safely and conveniently along the street and to have reasonable crossing opportunities; to travel through a comfortable and interesting environment provided by high - quality urban design; and to have appropriate pedestrian amenities such as benches, shade and water fountains.
- In existing residential areas, the city will identify alternative means of meeting defined pedestrian needs. If the need can be met safely within the traveled way of a rural residential street or access lane, then sidewalks may not need to be developed.



Existing and Proposed Pedestrian Facilities - City of Boulder

Performance

An important question with any plan is "How does the plan perform given the investment?" To address this question, traditional vehicle-based performance measures were supplemented with new measures reflecting the accessibility and mobility of the multimodal transportation system.

1996 TMP Performance Measures

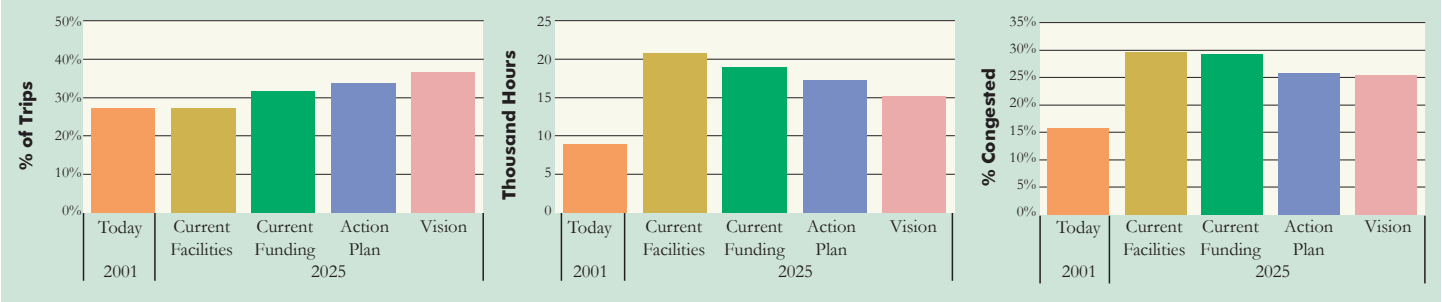
In the 1996 TMP, key performance measurements were identified. These performance measures resulted from the development and application of a transportation model developed specifically for the Boulder Valley as part of that TMP update. This model included the most recent assumptions regarding 2020 growth in population and employment.

The key 1996 TMP performance measures included:

- Alternative Modes as a Percent of Total Trips;
- Vehicle Miles of Travel (VMT);
- Percent of Arterial Lane Miles Congested; and
- Air Quality
  - Carbon Monoxide (CO) Emissions;
  - Volatile Organic Compounds (VOC) Emissions; and
  - Nitrous Oxides (NOx) Emissions.

2003 TMP Performance Measures

The forecast for significant growth in population and employment within the Boulder Valley will result in increased congestion on the regional corridors. As discussed in the Regional Focus Area, this results from a lack of funded investments in the regional corridors. The modeling conservatively assumes existing, dedicated funds for these regional connections. However, with the increased investments within the Boulder Valley proposed in this Plan, from the Current Funding program through the Action Plan to the Vision, improved access and connections to alternative modes is provided. This improved access to alternative modes results in reductions in the expected congestion and improved mobility. However, the resulting congestion levels will be higher than exist today with significant congestion increases on the regional corridors if additional improvements are not funded.



Alternative Modes as a Percent of Total Trips | Vehicle Hours of Congestion | Percent of Arterial Lane Miles Congested

Air Quality

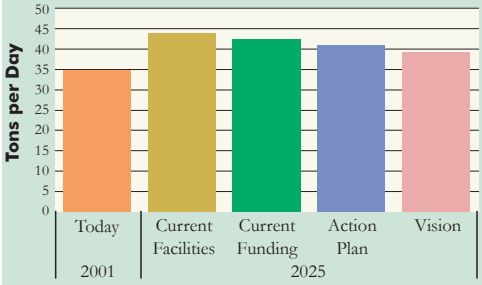
The Denver region has been out of compliance with federal air quality standards for most of the time that those standards have existed. Regional pollutants with established federal health-based standards include carbon monoxide, particulate matter and ozone. While industry, power plants and other activities contribute to air pollution, automobiles are the largest source for carbon monoxide and a major contributor to the others.

Carbon monoxide (CO) is a colorless, odorless gas that is formed from incomplete combustion and inhibits the body's ability to transport oxygen in the bloodstream.

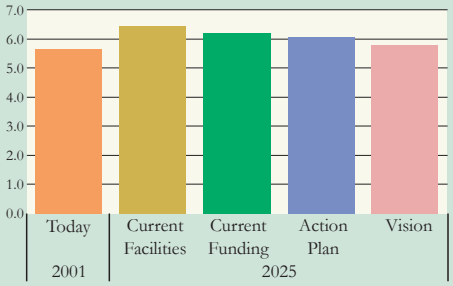
Particulate matter (PM) refers to airborne particles that can be inhaled and reduce lung function. Larger particles come from windblown dust, unpaved roads and street sand. Smaller particles are more hazardous to health and come from motor vehicles, power generation, diesel emissions, and wood smoke.

Ozone pollution is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx) react in the presence of sunlight. Emissions from local industry, cars, paints and even our lawn mowers contribute to ozone formation. At ground level, ozone is an irritant to everyone and can cause breathing problems and respiratory infections in the elderly, the young, and those with pre-existing ailments. Healthy people who exercise or work outdoors can experience breathing problems when exposed to ozone.

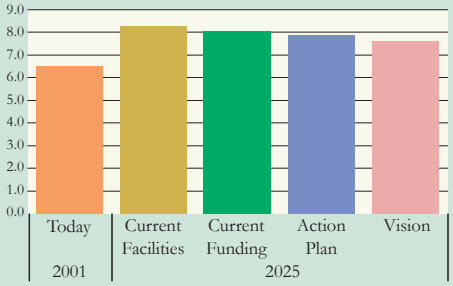
While the Denver region recently achieved the federal standards for air pollution, this was almost entirely due to improvements in motor vehicle technology. With the continued increase in the miles of vehicle travel, the region will likely return to violating air quality standards and not accomplish the objective of continuous improvement in air quality. Increased vehicle travel will also increase the amount of CO2 (carbon dioxide) produced, a gas implicated in global warming.



CO Emissions



VOC Emissions



NOx Emissions

Alternatively Fueled Vehicles

Increasing the share of alternatively fueled vehicles (AFVs) in the community contributes to the TMP objective of continuously reducing air pollutant emissions from mobile sources. AFVs produce fewer air pollutants and greenhouse gases and generally have improved fuel economy, which supports environmental sustainability. "Alternative fuels" are fuels that are not petroleum-based gasoline or diesel. For the three distinct vehicle fleets, strategies are:

- **City Fleet**

The city actively acquires AFVs, which currently makes up eight (8) percent of the city fleet. The city intends to replace 60 percent of light duty vehicles with alternative fuel or hybrid vehicles.

- **Public (Bus) Fleet**

Currently, AFVs make up a small percent of the transit fleet. The city will work with Special Transit and RTD in vehicle selections and specification development to pursue AFVs. Special Transit intends to pilot AFVs, and based on that experience, the city and its partners will develop an appropriate target for AFVs in the public fleet.

- **Private (Citizens of Boulder) Fleet**

Cost, inconvenience of "fueling," lack of convenient options and lack of information are barriers to private AFV ownership. The city will work to address these barriers and develop a target for increasing the number of AFVs in the Boulder community. These barriers will likely be overcome incrementally, and this will be reflected in the target.

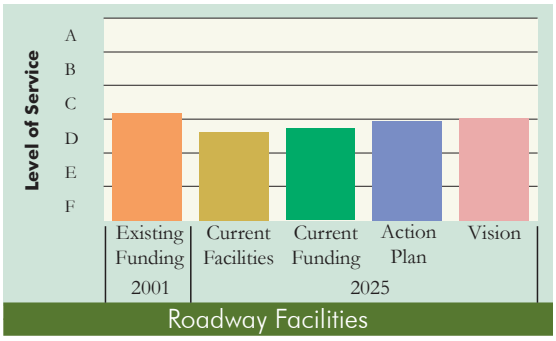
Overall, the infrastructure to support alternatively fueled vehicles will be developed on an incremental basis, building on successes along the way. The most important result of the infrastructure would be availability of an attractive, competitive alternative to the petroleum-fueled vehicle for travel to and within Boulder and ultimately in the region.

Alternatively Fueled Vehicle Policies

The goal is to increase the number of AFVs by 2025 in the private (citizens of Boulder), public (bus), and city fleets. To meet this goal, the city will employ the following policies:

- The city will be a leader in the community in purchasing and utilizing alternatively fueled vehicles.
- The city will contribute to an infrastructure supporting alternatively fueled vehicles, developed with Boulder County, CU, the Boulder Valley School District, RTD, Special Transit and other interested parties.

Corridor Level of Service

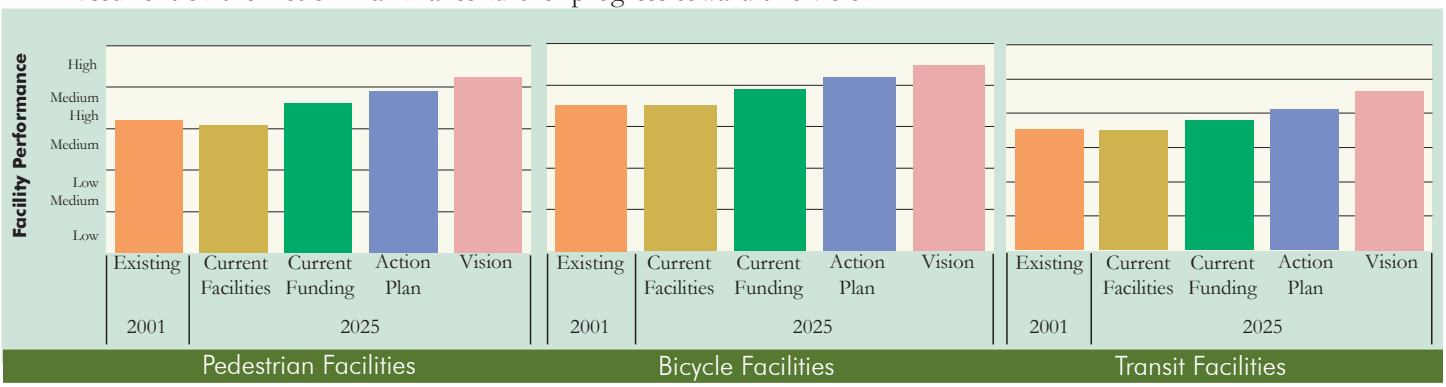


Level of Service (LOS) is a measure of how well the roadway system is operating in terms of moving motor vehicles. It includes factors such as the delay at traffic signals and the ability for a driver to make the desired movements. Currently, the overall Level of Service for the multimodal corridors is LOS C. With forecasted traffic growth, this overall level of service will drop to a mid LOS D without additional improvements or improve to a high D with the Current Funding roadway improvements coupled with the expected shifts in trips to alternative modes. The composite multimodal corridor LOS rating will improve to upper D/ lower C with the investment and mode shift expected from the Action Plan.

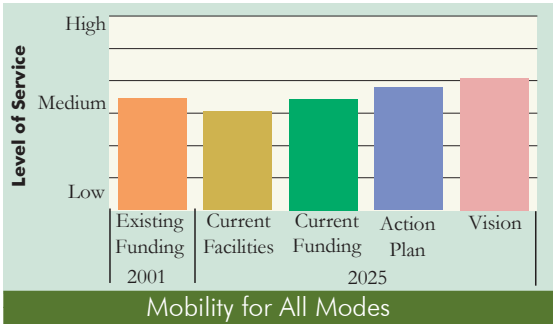
Facility Performance

To address multimodal facility performance, pedestrian, bicycle and transit facilities were evaluated for each of the multimodal corridor segments and rated from high to low on the basis of quality of their facilities for pedestrian, bicycle and transit travel. These individual corridor segment rankings were then aggregated for the overall city composite rating presented below.

In general, the city of Boulder's multimodal transportation corridors currently have moderate to good pedestrian, bicycle and transit facilities. Whereas Current Funding will provide some improvement toward Boulder's vision, the additional investment of the Action Plan makes further progress toward this vision.



Citywide Mobility Index



The Transportation Equity Act for the 21st Century (TEA-21) provides a new framework for addressing mobility in our community. A key element of this federal legislation was recognizing that mobility is defined in a larger context than just automobile travel. The Citywide Mobility Index reflects this by considering mobility for all modes. It was created by aggregating the above corridor levels of service and facility performance measures for pedestrian, bicycle, transit and roadway. Each was weighted based on its share of total trips in Boulder for today and in the future.

This measurement is similar to the Congestion Burden Index generated by the Surface Transportation Policy Project (STPP) and seeks to balance the proportion of an area's population subjected to traffic congestion with its ability to utilize other modes of transportation. Improvements in the other modes with limited increases in roadway congestion may increase the overall mobility of a community or at least somewhat compensate for increases in roadway congestion.

The Citywide Mobility Index shows that with increased travel growth in the city of Boulder, overall mobility will decrease without transportation investments. With the investments under Current Funding, overall mobility remains about the same as today while the investments of the Action Plan are expected to improve overall mobility within the city.

Implementation.....Next Steps

With the adoption of this plan, the city commits itself to the strategies contained in the Current Funding program and to actively pursuing the funding needed to implement the Action Plan. The implementation steps that will be taken in the next two years include:

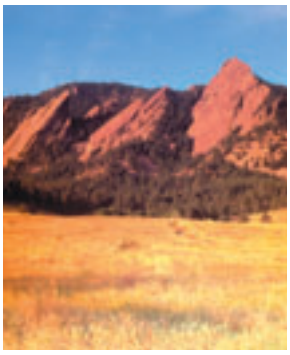
Multimodal Corridors

- Continue to prioritize, design and construct our multimodal corridors for all modes of travel in a way that fits the desired character and function of each individual corridor and corridor segment.
- Continue to coordinate transportation planning and investments with anticipated changes in land use to maximize the effectiveness of both.
- Continue planning for the proposed CTN transit service on 28th Street to support the land use and multimodal investments on that corridor.
- Continue to pursue lower-cost pedestrian and bicycle facility enhancements (such as pedestrian crossings, access ramps, bike lanes and missing links) through the dedicated pedestrian and bike facilities funds.

- Focus on roadway enhancement projects that also address safety issues identified through the Hazard Elimination Program.
- Continue to implement efficiency improvements to the overall system through real-time traffic information, traffic flow improvements at key intersections, and other efforts.

Regional Travel

- Continue to support and participate in coalitions to create multimodal plans and funding for key regional connections such as the Diagonal (Highway 119), Arapahoe Road (Highway 7), Highway 93, and U.S. 36.
- Maintain the city's role in supporting the locally preferred improvements on the U.S. 36 corridor by active participation and creation of funding opportunities in the EIS process.
- Continue the city's participation in the Boulder County Regional Transit Committee to develop a county-wide vision and funding plan for transit.
- Pursue implementation of providing real-time transit information at major bus stops and through the internet, cell phones and PDAs.



Transportation Demand Management (TDM)

- Continue to implement efficiency improvements to the overall system through real-time traffic information, transit information, traffic flow improvements at key intersections and other efforts that help people use the transportation system more efficiently.
- Begin working with businesses and residents in the 28th/30th Street corridor to explore how TDM and a business-oriented Transportation Management Organization can integrate, promote and support the expected development, redevelopment, and transition of the area.
- Distribute the TDM Toolkit to businesses, property owners, and property managers, and work with them to develop customized TDM programs appropriate for their location.

Funding

- Develop the annual transportation budget and CIP in a way that reflects the spending priorities of the Current Funding program.
- Begin discussions with business and community groups on the need for additional transportation funding, with the expectation of developing a ballot proposal supporting a set of projects and programs consistent with the framework of the Action Plan.
- Work with RTD to implement and fund real-time transit information on buses in Boulder.

Smart Transportation

- Establish targets for clean fuels for the public (bus) fleets and, through an incentive-based approach, the private (citizens of Boulder) fleet.
- Continue to replace gasoline- and diesel-fueled vehicles with alternatively fueled vehicles within the city fleet.
- Maintain and enhance the TMP Web site and develop it into a comprehensive gateway to the transportation activities of the city and the region.